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RAIL-ROAD NEWS.

Hudson River Railroad.

This road is now completed, and its history forms both an interesting and instructive chapter. Its total cost and equipment, up to this date, is $6,666,681, or over six and a half millions of dollars. The company was organized March 1st, 1847, and to the 31st December, 1848, the amount of capital stock subscribed was $3,110,500; of this amount $2,384,200 was paid in. The expenditures for this period were $481,386 12 for land; $1,426 83 for buildings: $1,581,366 34 for construction, and $108,533 18 for salaries. No part of the road was in operation on the 1st January, 1849, but during the summer and autumn of that year the track was laid to Poughkeepsie, and on the 30th of September the road was open for travel to Peekskill, and on December 31st to Poughkeepsie. During these years the capital stock was increased to $3,281,500: of this amount $3,157,175 was actually paid in. The whole cost of the road to December, 1849, was $5,003,675 39. During the year 1849 about forty miles of a double track was laid, extending from New York to Peekskill, and a large amount of work was done to secure the structures, increase the conveniences and promote the safety of the road. That portion of the road between Poughkeepsie and Albany was put under contract in July, 1850. On the 16th June the road was opened to Hudson; July 7th, to Oak Hill; August 3d to Tivoli; and October 1st, to New York.

Public opinion pronounced this road would prove a poor speculation. It runs along side of the Hudson River, and had to be cut through mountains in some parts, and had to span valleys in others, and at the same time it was to compete with the finest steamboats in the world, some of which ran at the rate of twenty miles per hour. It was said "it never would pay," but since it has been opened to Poughkeepsie it has paid, and paid well, and we suppose it is the cheapest road to travel on in the United States. It deserves to be supported with a general good will.

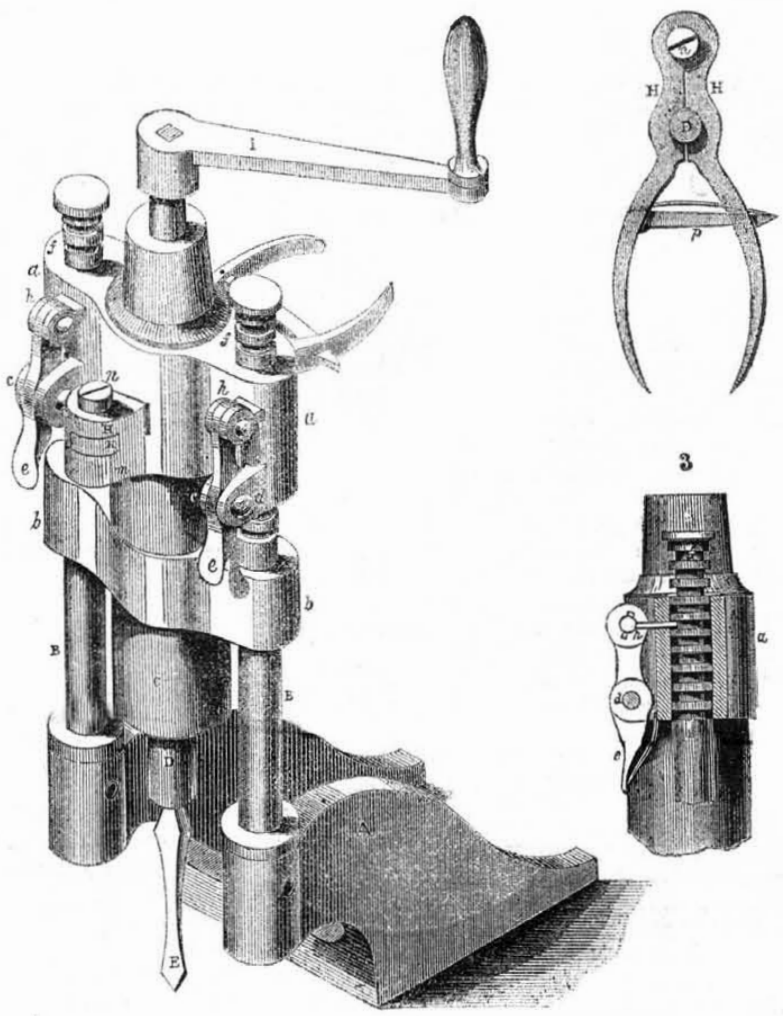
This road was opened with a grand celebration on Wednesday, last week. The locomotive took the train from Albany to New York in about three hours and a half. There were two engines in requisition, both of which made the fastest time ever made in our country;—they were built from plans of Mr. Walter McQueen, the master machinist, and one of the ablest in the world.

The East Tennessee and Georgia Railroad.

We understand, says the Knoxville Register of the 18th ult., that Mr. Pritchard and his corps of engineers, are now busily engaged in re-surveying and re-locating the route for the railroad between Blair's Ferry and Knoxville. They have already permanently selected the site where the bridge will cross the Tennessee river, and we have no doubt the Company will let the bridge out by contract at the next meeting of the directors, and in all probability, a part of the road for grading. Georgia is exhibiting an energy and enterprise worthy of a great State, as she is

BUSHNELL'S IMPROVED METAL DRILL.

Figure 1. **Figure 2.**



The accompanying engravings represent an improvement in drilling machines, invented by Mr. William Bushnell, of this city, who has taken measures so secure a patent for the same. A neat working model of this machine is exhibited in the machine room of the Fair, where we saw it operate with great satisfaction.

FIG. 4.

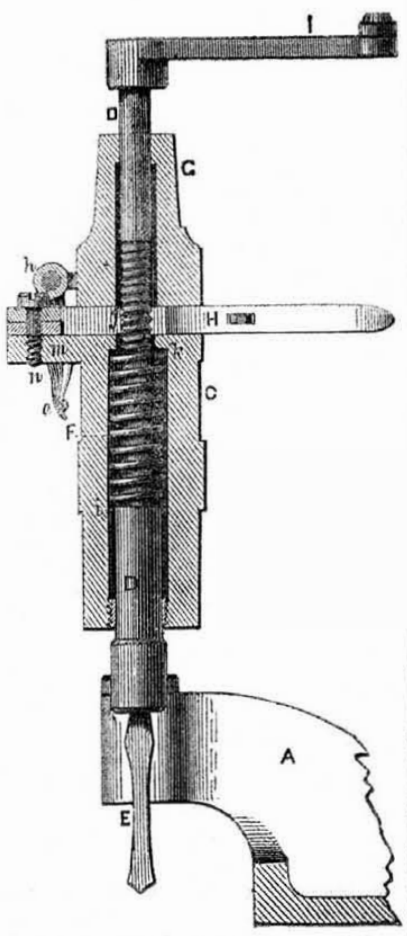


Figure 1 is a perspective view; Figure 2 is vertical section, of the standards, to which the base plate is connected. Figure 4 is a vertical section, showing the drill with the tension spring, and the box through which the spindle of the drill passes. The same letters refer to like parts.

A is the base or foot plate; B B are its two movable rods or standards, forming the guide frame for carrying the adjustable head, which consists of a hollow cylinder, C, having two tubular side guides, *a b*, for the standards. In front of the upper tubes, *a a*, is a pair of of small lugs, C C, through which are inserted a pin, *d*, which is the fulcrum of the catch lever, *e*, (one for each tube). Fig. 3 shows the catch, *h*, and *f* represents the grooves in the standard, B. These standards can be raised or lowered at will by pressing on the ends of the levers, *e e*, throwing out the catches. *h h*, when the standards, B B, can then be pushed up or down in their tubes, *a b*. The catches, *h h*, hold them in the desired position. There is a small spring under each lever, *e*, which tends to force the catch, *h*, into the notch or groove of B. D is the drill with a socket at its lower end. F is the drill tool; *j* is a screw cut on the drill spindle and fitting into the upper end of the cylinder, C, below the shoulder, G, (fig. 4). In the cylinder, C, is an enlarged space for the helical spring, F which coils around the spindle, resting below on its shoulder, *i*, and bearing above against the shoulder, *k*, of the cylinder. I is the handle.

The nippers pass through and act in the adjustable head. The head of them is secured in the arm, *m*, (fig. 1) by the pin, *n*, which forms an axis for the arms H, H, to act on. Embracing the spindle D, (fig. 2) each side of the nippers is cut with a thread, which serves for a nut in which the screw, *j*, (fig. 4) of the spindle works. *p* is a spring which catches into an opening in one of the arms, H, and holds the arms together when they are closed as a nut around the screw of the drill spindle. The nippers are represented as closed in fig. 2.

OPERATION.—The work being placed under the drill tool, and the machine being placed at its work, it is necessary to adjust the spring to give a suitable pressure to the drill stock; this is done by closing the nippers on the screw, *j*, until the spring, F, is sufficiently contracted, when the adjustable head is brought to a suitable position on the guide standards, B B; the nippers are then opened, and the drill spindle left free. The drill stock is then turned by the handle, I, and the expansion of the spring then gives the necessary pressure to the drill. When the hole is drilled to the requisite depth, the nippers are closed, and the spindle turned in the contrary direction, to raise it. The adjustable head can be set at once to bore any number of holes of the same depth, but it has to be changed for holes of varying depths.

The nature of this improvement, and its claim, consist in the combination of the helical spring, and the nippers, and the screw on the spindle, by which the pressure is controlled, and the drill stock operated in a most efficient and beautiful manner, as will readily be appreciated by any reader who pays proper attention to our description, and carefully examines the illustrative engravings.

We sincerely request those who wish such a drill as this, to examine and re-examine it. We do not wish to say it is good because it is here illustrated, but let it be inspected and judged upon its working merits. Orders will be received for it at this office. Price $25.

Block from the old Frigate Hussar.

We have been presented by Mr. Marsh, of Morrisania, with the metal work of one of the blocks taken from the wreck of the old British frigate Hussar, which was lost during the Revolution a short distance above Hurlgate. The wood was lignumvitæ, but is rendered spongy and totally useless. The block appeared to have been as well made as any now used: the main spindle is a strong iron bolt, greatly oxydized, and the bearings of the small friction rollers are angular pieces of gun metal, with iron studs. There does not appear to have been any of that electric action spoken of in the case referred to by Prof. Henry, as noticed by us a few weeks ago, and we understand that some pieces of iron, unconnected with any brass, were found more decayed than the iron of the musket alluded to on that occasion. The gun metal is as good at the present moment as it was the day the frigate was lost. The copper on her bottom is stated to be better than most of the sheathing now used on our ships. The action of the salt water upon the iron gives the spindle the appearance of a twisted rope, thus showing that the iron was of the very best quality, as we judge, of Swedish manufacture.

The Good of Theories.

In the pursuit of science, theories lead to experiments and investigations, and he who investigates will scarcely ever fail of being rewarded by discoveries. It may be, indeed, the theory sought to be established is entirely unfounded in nature, but while searching, in a right spirit, for one thing, the inquirer may be rewarded by finding others far more valuable than those which he sought.

The citizens of Louisville voted a large loan for several railroads, but a few days since, and we see that Lexington has voted, by a large majority, to loan $200,000 to the Lexington and Covington Railroad. We are glad to see Kentucky going ahead.

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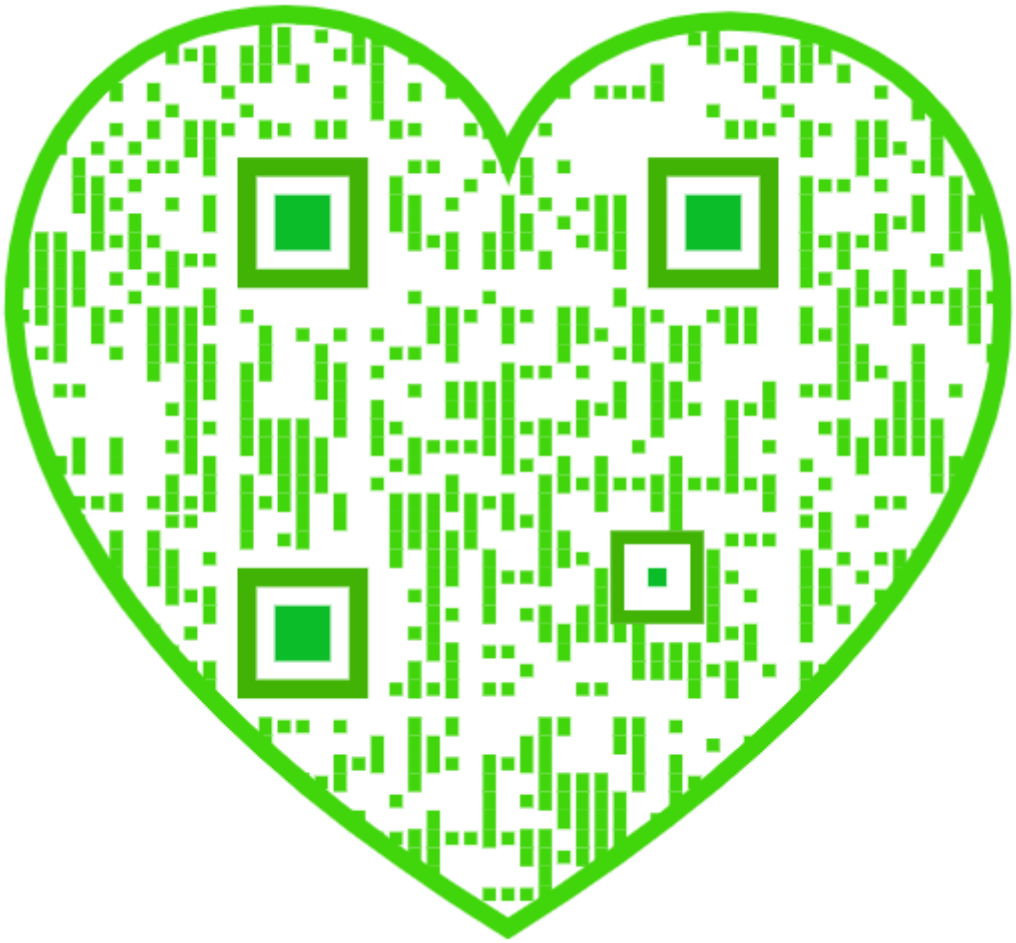

MISCELLANEOUS.

The Fair of the American Institute.

After having opened on the first inst., the whole of the departments may now be said to be in full operation. It seems that a full week is generally required to set all the wheels in operation. There are not, by a great deal, so many articles exhibited this year, and as we said last week, "the arrangement is better on this very account. Much trash has been refused, and there is room to walk about, less confusion, and consequently one article does not seem to be contending for the honor of covering up its fellow.

In the machinery room there are fewer machines, and not many actually new things, while a few old stagers are still to be seen on the shelves—such as an angular paddle wheel, which has flourished at every Fair within our recollection, and which is as worthless for practical purposes as a slap-jack would be.

The machinery is driven by one of Mr. Burden's beautiful engines, but there is less tax upon its powers this year than there was last.

Cotton Spinning Machines.—There are two spinning frames exhibited, one is Dodge's Cop Spinner, which has been on exhibition before, but is now neater in construction, and considerably improved. The other is the Spinning Frame of Mr. Wanton Rouse, of Taunton, Mass., a very excellent machine. Mr. Rouse obtained a patent for a good improvement on this machine last year, and since then he has made one or two others. It does its work well, and is, in every respect, a beautiful machine; it was constructed by Mr. Robert Dean, of Taunton, aforesaid. One peculiar feature of this machine, and for which we had the pleasure of procuring a patent, consists in an auxiliary guide rail, which so guides the thread that it has the same amount of draught at every point in building the cope; this enables it to make a most beautiful, firm, and even cope. Another recent improvement, is a peculiar cone cam to guide the rail. This cam has a rotary and a longitudinal movement to guide the rail in the most proper manner to lay on the thread as the cope increases in thickness. It is a valuable improvement.

Turning Lathes.—Messrs. Scranton & Parshley, machinists, New Haven, Conn., exhibit quite a number of turning lathes and other tools. The price is affixed to each lathe, so he that runneth may read. We like this plan, for it at once presents to the eye the saleable value of the machine, and people can judge by the eye whether they are worth their price or not. We would like it if the price, was put on all machines.

Inventions Illustrated in the Sci. Am.—In order to show that the inventions we publish are of such a nature as not to be afraid of light and public examination, and are really meritorious, we would state that a number of very prominent machines exhibited have been illustrated and described in our columns. An excellent Rotary Pump. the invention of Mr. Carey, was illustrated on page 345, Vol. 3. The very excellent machine of Messrs. Adams & Son, of Amherst, Mass., for making Felloes, was illustrated on page 169, Vol. 4. Mr. R. Cook's Blowing Engine, on pages 185 and 188 Vol. 5. The patent invention of Mr. Post, for Opening and Closing Window Shutters and Doors, and illustrated two weeks ago, on page 19, is also exhibited and meets with much attention. The Portable Furnaces, Blow Pipes, and Jeweller's Table of Messrs. Barron, illustrated on page 28, Vol. 5, are also there; so is Porter's Forge Tuyere, illustrated on page 405, Vol. 6, also displayed.

We may yet be able to dig out more inventions which have heretofore been illustrated and described by us. We have not had time to explore the whole ground, consequently we have not yet seen all. In the meantime let us say, these inventions are certainly much more conspicuous on account of being published; this is easily accounted for, thousands having descriptions of them, because we have now the largest circulation of any mechanical paper in the world, and those who are interested in new improvements look to our columns as the first source where such improvements are likely to be found. In alluding to the said machines, as published by us, we at once refer to the source where good descriptions of them can be found; we therefore do not say anything about their nature at present.

Iron Shears and Punching Machines.—J. T. Perkins, of Hudson, N. Y., exhibits good iron shears and a punching machine. Mr. Perkins makes excellent tools and has a good reputation. These tools are of good workmanship and of the common form.

Self-Stripping Carding Machine.—J. P. Stillman & Co., of Westerley, R. I., exhibits a Self-stripping Carding Machine; this has long been a desideratum among cotton manufacturers; the machine works cleverly, and is a piece of the greatest curiosity at the Fair. By looking at it, nothing seems to be doing at all, when, all at once, up flies a flap of the cylinder cover and forward comes a flap, stripped clean as the leaf of a book. The only objection we have to it is the force used, and flapping noise made when the card is cleared. This may be remedied by some device, such as a buffer of india rubber or a covered spring.

Steam Gauges.—Mr. P. Stillman exhibits, as usual, an unrivalled case of beautiful instruments connected with steam engines and boilers. His Steam Vacuum and Water Gauge is a fine instrument, and for workmanship, they look like the handiwork of a master chronometer maker. Lowe's Pressure Gauge, of which Mr. Pirsson, No. 5 Wall street, is agent, is a very excellent and beautiful instrument.

Mangles.—Of these useful domestic machines, a number are exhibited. The Spring Mangle, illustrated in Vol. 4, Sci. Am., is there as large as life, claimed to be a "patent," but we don't know where to find the record of it in the books of the Patent Office. It is a good mangle, though, and is manufactured by Duncan & West, No. 51 Beekman street, this city, also by Smith, Torrey & Co., No. 50 Maiden Lane. It would be well for every family to have one of these machines, at least, if the family consists of more than three or four persons.

The Fine Arts.—The very first thing that strikes an observer, when he enters the portico, is a fine bronze casting of a huge mastiff, with an apparent mixed of the noble Spanish hound; it is the work of Mr. Hoppin, of the firm of Bogardus & Hoppin, of this city. We wish this work of art had been sent to the London Exhibition, it would have done us much credit as a people as it does Mr. Hoppin personally. It is by far the finest work of the kind we have ever seen.

Daguerreotypes.—The Daguerreotypes of Messrs. M. A. & S. Root, in this city, are the finest exhibited. They are rich and full in tone, and have none of that dead and flat appearance which, in general, characterize and are found fault with in daguerreotypes. We advise those who visit the gallery to give their pictures particular attention: they will find them full of self-commendation—requiring only to be seen to be admired. There are some oil paintings exhibited, but alas for the genius displayed. But we must be charitable, and will say this much in extenuation of doubtful merit, "the field was too great, not for the paint but the *powers*."

New Jersey Zinc.—There is a very interesting display of New Jersey Zinc Ores, the pure zinc made from it, and various oxides of zinc, now used for paints. We are glad to know that the zinc paints are so beautiful and enduring. Lead paints, which are very destructive to health, should not be countenanced where the zinc can be used. Zinc paints are healthy and free from all injurious qualities. With a public spirit well worthy of commendation and being publicly noticed, this company has offered prizes for the best pieces of painting, to be brought in and exhibited as zinc painting. For a long time the zinc ore of New Jersey lay valueless to our country: no plan was known whereby it could be resolved economically from the ore. Eminent American and European chemists were consulted, but they knew nothing about it. Experiment and sagacity have at last triumphed, but not until a very short time ago, when, by a new discovery—a mechanical application—it is now made cheaply and well. The invention is an exhausting draught, whereby the zinc vapor is drawn from furnaces and condensed in large bags, the air passing through the bag, which retains the metallic vapor. It is a most beautiful and ingenious application of art. The agents of this Company are S. T. Jones & Co., No. 53, Beaver street, this city.

Model of Mount Vernon.—One feature of great interest at the Fair is a miniature model of Mount Vernon, the place wherethe great Washington lived, and where his ashes now repose. It is the work of Mr. Yates, and is the subject of great attraction.

We shall continue our observations next week.

The Exhibition of the Franklin Institute.

This old and respectable institute holds its next fair in the halls of the Philadelphia Museum, and opens on the 21st inst. The rooms were to be opened this week on Friday, for the reception of goods, and no goods can be entered for competition or premium after the 20th, though they may be deposited for exhibition. After the 25th no deposits will be received, except by special action of the Committee. It will close on the 1st of November. The judges are persons practically acquainted with the several branches of manufactures on which they shall be appointed. Awards will not be confined to specimens prepared expressly for exhibition, but regard will be had to the prices and quality of the articles, compared with the same description of foreign goods, and with specimens presented at former exhibitions; and no premium shall be awarded for an article that has received one at any former exhibition of the Institute. Three grades of premiums will be awarded, styled a first, second, and third premium, consisting of a silver medal, a bronze medal, and a certificate. All articles deposited must be accompanied by an invoice, stating the name and residence of the maker and depositor.

Beards.

Mr. Andrew Jackson Davis, the celebrated Seer, comes out in the Hartford Times in favor of men wearing their beards. He says the hairs of the beard are ulimations or continuations of nerves; those of the hard coating and membrane of the eye are connected with the beard on the upper lip, and when that is shaved off the nerves are exposed to injury; some diseases of the eye he attributes to shaving. In women, these nerves instead of terminating in the upper lip are buried in the cheeks, and have much to do in controlling the phenomena of blushing. Bronchitis and maladies of the lungs are produced by shaving off the beard on the chin. Mr. Davis also argues that mustachios are no obstacle in the way of eating, or any other function in which the lips are employed: an argument indeed which we cannot admit. The most uncomfortable thing to decent eating, appears to be mustachio, but every man to his taste; we suppose that Davis has had a revelation on the subject, having seen inhabitants of his other world with beards, but that is very easily accounted for, no razors being made there.

Copper in Wisconsin.

Copper has been discovered near the village of Bad Axe. Mr. Smith, a merchant of that village, was one day out with his gun for a few hours' sport. He had wounded a deer, and was following it up by the marks of blood on the grass, when he stumbled upon a sharp point of some substance sticking up above the surface of the ground. A moments' examination convinced him that he had found a piece of native copper. He dislodged the mass from its bed, and taking it home, he found it to weigh some 50 pounds. Encouraged by this discovery on his own land, he has been engaged in sinking a shaft on the spot. He has already taken out some 60,000 pounds of ore, mixed with native mineral, valued at $60 per thousand, and by "drifting ahead" in the crevices between the rocks, has found the vein to be of great value. Report assigns it a thickness of seven feet, and a depth as yet unexplored.

Culture of the Olive.

R. Chisholm, Esq., of Beaufort, S. C., is cultivating tbe olive tree from plants procured in the neighborhood of Florence, in Italy. The olive tree will grow throughout the cotton-growing region. The plant is of slow growth and very hardy. We are glad to know that there is a prospect of cultivating the olive in our country, for assuredly the oils sold here for "pure olive," are fraudently mixed with lard oil. It is a fine oil for table use, and is most extensively used in France, Switzerland, Germany, Britain, and Turkey, in preparing cotton for the beautiful Turkey red dye. None of this color is dyed in America; By having pure, cheap olive oils, we will have better soaps, &c.

Poetry and the Fire Annihilator.

Mr. G. H. Cutter, the author of "The Song of Steam," and some other thrilling pieces of poetry, has added another leaf to his laurel by writing "The Song of the Fire Annihilator," which appeared in the "New York Daily Times," of Wednesday last week. The poetry would have produced a very powerful effect upon our mind, and would have lighted up a flame of enthusiasm equal to that produced by the "Song of Steam," and we should have defied all the fire annihilators in the world to have quenched it, if the author had only lighted his poetical torch at the vestal fire of truth; but in this case he unhappily has made a very wrong choice of a subject. Let us quote the last two verses for the sake of illustration:—

The hand of Science, that called me forth
My sceptre shall now obey;
From the curse of this ruin I'll shield the earth,
Till the planets themselves decay;—
Till the solemn end of that final day,
When the stars from heaven shall fall,
And I myself shall be swept away,
In the fire that consumeth all.

Then bear me forth to each distant land,
And the scenes that ye so deplore—
The midnight blaze—the incendiary's brand—
Shall ravage the world no more.
When your burning palaces light the skies,
Like a signal of doom and death,
The flame that your utmost strength defies,
I'll quench with a single breath."

Mr. Cutter has formed the idea that no more Moscows, nor burning ships, nor palaces, will take place; but if a person goes down to the Fair at Castle Garden, and examines one of the Fire Annihilators, with the price ($20) on it, he will be constrained to take a hearty laugh at the idea of a fire being quenched by a single breath of such a miserable substitute for the Fire Engine.

Healey's National Picture.

We examined a few days since, at the National Academy of Design, Healey's recently finished historical painting of Daniel Webster in the United States Senate Chamber, represented as he appeared in 1830, when he replied to the speech of Robert Y. Haynes, the then Senator from South Carolina. The United States Senate Chamber is in the form of a segment of a circle. The presiding officer's chair is in the centre of the straight line, or chord of the arc; so that, to include a view of the Vice President (John C. Calhoun) in his place, only a section of the chamber can be given upon a plain surface. Mr. Webster is to the right of the central aisle, and is, of course, the figure of the painting, to which all the others are accessories. It embraces over one hundred portraits of distinguished characters, several of whom were recognized by us as excellent likenesses. Mr. Healey has devoted several years to this work, and we regard it as reflecting the highest credit upon his skill. It stands in a magnificent frame, of large size, and is embellished with unique designs. Every lover of art will be amply rewarded for the time spent in viewing this great work.

Porter's Tuyere Iron.

We would call the attention of our readers to the advertisement of Mr. Porter, in another column of this paper. Mr. Porter has shown us certificates, commendatory of his invention, from some of the most extensive iron makers in this city, and from what knowledge we have of his invention, we can confidently recommend his Tuyere to any parties who have occasion to use such an article.

Stove Polish.

We have again been favored with a specimen of Stove Polish from the establishment of Messrs. Quarterman & Son, 114 John street, and as is the case with every thing which emanates from their works, it is an article unsurpassed by any polish or blacking we have ever used. See advertising columns.

Rice has been cultivated more than 150 years in South Carolina. It was planted there in the year 1693, and has been grown every year since that time.

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(For the Scientific American.)

Adumbration of the Creator's Transcendent Wisdom in the Adaptation of Things.

[Concluded from page 27.]

Sulphur will not mix with water at all. Sugar mixes with it very readily. If the earth had been in this respect like sulphur rain water would have run off as soon as it fell; there could have been no vegetation, and creeks and rivers would have overflowed many farms at every shower. Had the earth absorbed water as sugar does, we should have sank over our heads into the mud after every copious rain, buildings could only have been erected upon immense rocks, but without timber, for large vegetables could not have withstood the slightest wind. Indeed the earth would not have been habitable. But sulphur and sugar, yea, all things, are most wisely and exactly adapted to their respective uses. By whom ?

In Chili it does not rain because the trade winds, which are necessary to agitate the watery and the atmospheric oceans and keep them pure, sweep the clouds past South America, and drive some of them up against the Andes, where they are condensed by almost continual thunder showers and run down across the level country in copious streams. Evaporation in this warm country is very brisk, aud the vapor rising from the broad Pacific, being blown on the land by trade winds falls in copious showers of dew, making Chili one of the most fruitful countries on the Pacific coast.

In Egypt it does not rain, and there are no mountains to intercept the clouds, nor a broad ocean on the west to yield copious moistures supplying water for dew. But the all-wise Creator and giver of every good and perfect gift, was at no loss to make that country what she once was—the granary of the world. Egypt is a level country—the Nile, which waters it, rises in the mountains of the moon, as the rivers in South America do in the Andes, causing the Nile to overflow its banks at a proper period every year. The rain lasts long enough, and the distance is just great enough, to produce the flood two months after the rain has fallen.

In Greenland timber does not grow, and train oil serves in part for fuel. The timber necessary to form utensils for killing the whale and seal is sent by certain winds and currents from great distances and lodged among the islands; whence it comes is to the natives unknown. And the whale retires from his more potent executors, annually, and takes refuge under the polar ice to propagate its species.

Those planets which are near the sun have no moons and need none,—those farther off which need them have a number; and are so large that their moons cannot disturb their motions. If Mercury and Venus had been as large as Jupiter, their motions round the Sun must have been so rapid to balance their centrifugal forces, as to shorten their siderial revolutions very much; and then their diurnal rotations must also have been altered in proportion.

In addition to the winds, it was necessary that the ocean should be agitated by tides, and the Sun and Moon do effectually to keep the water (which is also impregnated with salt for the same purpose) pure. Lakes are constantly supplied with fresh water which flows off, and therefore need no tide.

If the moon were much nearer to the earth, or larger, the tides would be increased and overflow the fertile shore: were she farther off, or smaller, her light would be fainter, and the tides insufficient for the purpose intended.

If the earth, or the moon, or any of the planets or of their moons, or the sun, were either larger or smaller than they are, the harmonious motions of all the bodies belonging to our solar system, would be disturbed in their orbits, and the whole system must undergo a new arrangement till every body belonging to it had again balanced itself in relation to all the rest, or be doomed to destruction.

If the earth's diurnal motion were quickened, the torrid zone would be overflowed by the ocean,—if diminished, the same catastrophe would happen to the frigid, and those parts of the temperate zones which are nearest the poles, while the ocean's bed would be left dry in the equatorial region; for it is the centrifugal force, produced by the earth's rotation on her axis, that maintains the ocean every where at the height at which the water now stands. Hence, also, a river that runs north or south, as does the Mississippi, may have its mouth at a greater distance from the centre of the earth than its source.

La Place filled five large quarto volumes with a description of the bodies belonging to our solar system, and an investigation of the laws which govern their motions. By the aid of present improved telescopes. more than a hundred millions of such systems as ours may be counted in the universe. Now, at this rate, it would require more printing to describe all the celestial bodies in God's boundless kingdom, so far as we can explore it, than has been done since types and presses were invented; and it is indeed very probable that human eyes have as yet seen only a very small part of the Great Architect's magnificent buildings.

H. R. Schetterly.

Howell, Mich.

Liebig on Electro Magnetism as a Motive Power.

At the present moment, electro-magnetism, as a moving power, is engaging great attention and study; wonders are expected from its application to this purpose. According to the sanguine expectations of many persons, it will shortly be employed to put in motion every kind of machinery, and among other things it will be applied to impel the carriages of railroads, and this at so small a cost that expense will no longer be a matter of consideration.

Such expectations may be very attractive, and yet they are altogether illusory! they will not bear the test of many simple calculations; and these our friends have not troubled themselves to institute.

With a simple flame of spirits of wine, under a proper vessel containing boiling water, a small carriage of 200 to 300 pounds weight can be put in motion, or a weight of 100 pounds may be raised to a height of 20 feet. The same effects may be produced by disolving zinc in dilute sulphuric acid in a certain apparatus. This is an interesting discovery; but the question to be determined is, which of the two processes is the least expensive ?

If we require 8 pounds of oxygen to produce a certain effect, and we wish to employ chlorine for the same effect, we must employ neither more nor less than 35 1-2 pounds weight. In the same manner, 6 pounds weight of coal are equivalent to 32 pounds weight of zinc.

Heat, electricity, and magnetism, have a similar relation to each other as the chemical equivalents of coal, zinc, and oxygen. By a certain measure of electricity we produce a corresponding proportion of heat or of magnetic power; we obtain that electricity by chemical affinity, which in one shape produces heat, in another electricity or magnetism. A certain amount of affinity produces an equivalent of electricity in the same manner, as, on the other hand, we decompose equivalents of chemical compounds by a definite measure of electricity. The magnetic force of the pile is therefore limited to the extent of the chemical affinity, and in the case before us is obtained by the combination of the zinc and sulphuric acid. In the combustion of coal, the heat results from, and is measured by, the affinity of the oxygen of the atmosphere for that substance.

It is true that, with a very small expense of zinc, we can make an iron wire a magnet capable of sustaining a thousand pounds weight of iron: let us not be misled by this. Such a magnet could not raise a single pound weight of iron two inches, and therefore could not impart motion. The magnet acts like a rock, which while at rest presses with a weight of a thousand pounds upon a basis: it is like an enclosed lake, without an outlet and without a fall. But it may be said, we have, by mechanical arrangements, given it an outlet and fall. True: and this must be regarded as a triumph of mechanics; and I believe it is susceptible of further improvements, by which greater force may be obtainod. But with every conceivable advantage of mechanism, no one will dispute that one pound of coal, under the boiler of a steam engine, will give motion to a mass several hundred times greater than a pound of zinc in the galvanic pile.

Millholland's Coal Burning Locomotive.

We find a very interesting account in the Philadelphia Ledger, of a valuable improvement made in locomotives, by our friend Mr. Millholland, director of the machine department of the Reading Railroad, Pa., to which we wish to direct the attention of all our railroad managers and engineers. The improvement consists of two parts, namely:—the fire-box and boiler.

"The Fire-Box.—Instead of filling up the bottom of the fire-box (as usual) with open grate bars, clear to the back and sides; Mr. Millholland first sets in a stout cast iron frame, showing a flat surface of 16 inches at the back and of 9 inches at the sides of the fire-chamber —the remaining space only having grate bars.

The successful effect is this, viz:—the coals that lie on the broad plates, get so little air that the combustion cannot be active, and consequently the heat cannot be intense where the fire is in contact with the back and sides of the fire box. The fire is in fact so deadened at the sides, that the fire box promises to last for years, and the same effect at the back, preserves the tubular ends of the boiler as well.

In our locomotive engines, the boiler is one horizontal cylinder filled with tubes of copper or wrought iron, usually 2 1-2 inches in diameter. Through these tubes the fire passes. In this way the combustion of the fuel is very imperfect; a vast amount of carbon is merely converted into vapor, which for want of air to effect combustion, passes off in the draught unburned. This long single cylinder Mr. Millholland cuts in two (as it were,) leaving a chamber 26 inches wide between the sections. This chamber is a gas fire-box, and the sections of the boiler are so far connected as to surround the opening with water; Into this chamber jets of highly heated air flow, that consume the carbon which in the common engine escapes unburned, as we have explained.

It may be observed that in Winan's best anthracite locomotives, the depth of coal in the fire-box is 18 inches; in Millhollands improvement it is only 7 inches. The deeper the mass of coal the more imperfect the combustion must be, because a less proportionate supply of air can penetrate through the denser mass, and without a certain amount of pure air there can be no perfect combustion. But to further insure a supply of air, Mr. Millholland has a perforated door to his fire-box, which casts a sheet of air immediately over the top of the coals. But even with this aid to combustion, plenty of unburned carbon escapes into the gas fire-box, to be there consumed by contact with fresh hot air injected through finely-perforated tubes. The front section of the improved boiler is one-third, and that part of it back of the gas fire-box, is two-thirds of the whole. the iron tubes in the front section are 4 inches, in the back section they are 2 1-4 inches diameter. And it is found that the fragmentary stuff that usually clogs the passages falls to the bottom of this gas-box, and is readily removed through a door. When the fire is out, the gas-chamber forms a ready man-way for easy access to the tubes that may require attention, and in every other respect this improvement gives the greatest facicility for repairs.

These improvements have been thoroughly tested during three months, on three locomotives, and the Reading Railroad Company have decided to alter all their engines to Millholland's plan. The three altered engines were built by Mr. Ross Winans, of Baltimore, and consumed about 9½ tons each, during one trip, with a full train of cars. The same engines, as altered, use only 6 tons to do the same work.

The wood-burning locomotives on the Reading Railroad number eighty-one, and 14 cords of wood are used for one trip, the cost of this —sawing, &c.—is $56; the cost of six tons of coal only $12. The saving is very great. Coal-burning locomotives have been tried on some of our Eastern roads, but the great heat destroyed the fire-boxes so fast that they were found to be more expensive in the long run than wood-burning engines. As the improvement of Mr. Millholland remedies the evil in respect to the rapid destruction of fire-boxes, we hope to see his improvements introduced speedily upon all our roads. It will be a great relief to passengers, at any rate. It is stated that the expense of altering an iron tubed engine for wood is but small.

American Telescopes.

Within a few years our country has become greatly distinguished for astronomical knowledge and discoveries. Quite a large number of observatories have been erected and furnished with instruments of a superior character, but these instruments have been almost without exception of foreign manufacture.

Mr. Holcomb, of Mass., and Mr. Fitz, of New York have made a number of Telescopes. A new and very excellent one has recently been constructed by Mr. Josiah Lyman, of Mass. It is a reflecting telescope, having an aperture of nine inches, and a length of sixteen feet. It is on the Herschellian principle, the observer standing with his back toward the object under examination.

The performance of this telescope is said to be excellent. Professor Stephen Alexander, of Princeton, N. J., has furnished the following testimony:

"I was present at a partial trial of Mr. Lyman's telescope on the evening of August 23. The night was a tolerable one, and the magnifying power employed about 375. The two component stars Pi Aginlæ (distant apart from each other not quite two seconds) were satisfactorily separated; the cluster in Hercules presented somewhat of a granular appearance even at the centre; and the large nebula in Andromeda showed a variation of light at the centre, as though with greater light and power, it might have been resolved. I regard the performance of this telescope as highly satisfactory."

Mr. Lyman states that on the evening of August 29, with a power of 550, he saw the triple star Epsilon Equelei with perfect distinctness. Two of the components of this star were only half a second distant from each other in 1838, and since that time their distance has but slightly increased, yet this telescope separated them with perfect ease and sharpness.

In connection with this, we cannot omit to mention that at a very early date, America produced a Rittenhouse whose fame in connection with astronomical apparatus is world-wide and a matter of history.

Cedars and Pines of California.

A writer in the San Francisco Herald gives the following description of the pines and cedars of the land of gold:

"Of all the wonders I have ever seen in the vegetable kingdom," remarks this observant traveller, "nothing will bear comparison with the magnificent and lofty growth of cedars and pines, which embellish the hills and the mountains that lead and make up the Sierra Nevada range. The magnificence and grandeur of scenes, in which these trees abound, cannot be imagined by any man who has not seen them and felt the awe and sublimity to which they give rise. I have counted, in a circle of fifty feet, thirteen pine trees, not one of which was less than 250 feet in height, nor were any of them marked by the slightest curve or inclination. They are the inimitable and lofty monuments of Nature, uninfluenced by sweeping storms and winds, unbent and undecayed by a centurian age. Not a limb or a knot can be found upon their bodies, until you reach the altitude of from one hundred to two hundred feet, beyond which height they continue to grow, until their towering majesty overawes all surrounding objects, and affords a fit refuge for the noble bird which adorns the banner of our country. No man can travel through these scenes without feeling that the grandeur of Omnipotence itself is teaching him his finite and insignificant powers. Such was the moral influence of those leviathan growths of cedars and pines, upon my mind, I would not have dared to have given entertainment to a fugitive thought against the supremacy, wisdom, and power of Jehovah. Such are the pine and cedar forests of California, which cover an area of hundreds, if not thousands, of square miles."

Scorpions in Egypt.

The Egyptian correspondent of a London paper states that during a single week of the month of June, no fewer than eighty persons who had been bitten by scorpions were taken to the hospital at Cairo.

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NEW INVENTIONS.

Improvement In Pianofortes.

Mr. Fredericke Mathushek, of this city, (N. Y.), has taken measures to secure a patent for a very excellent improvement in Pianofortes. The strings are arranged upon a new principle within the instrument for the purpose of obtaining a greater amount of power in an instrument of a given size than can be obtained in the ordinary arrangement. The metal plate is also extended over all the tuning block, and it is provided with stays running in about the same directions as the strings, for the purpose of resisting their strain, and for stiffening the tuning block and plate, and strengthening the instrument.

Improvement in Carriage Springs.

Mr. Thomas Goddard, of the city of Boston, has invented an improvement in Springs for Carriages, for which he has taken measures to secure a patent. The nature of the improvements consists in the employment of a part hoop or bow-shaped spring, constructed of wood, set to any desired inclination, the ends of which are attached to the shafts of the carriage a considerable distance forward of the axle. The bow is intended as a most improved substitute for the old-fashioned hanging bar, which was halved and fastened across the back ends of the straight springs. By the arrangement of this bow spring with loops, as soon as the weight is applied to the carriage a double action is obtained, whereby the horse is greatly relieved from the downward pressing weight, and at the same time the motion of the carriage is rendered more pleasant and agreeable.

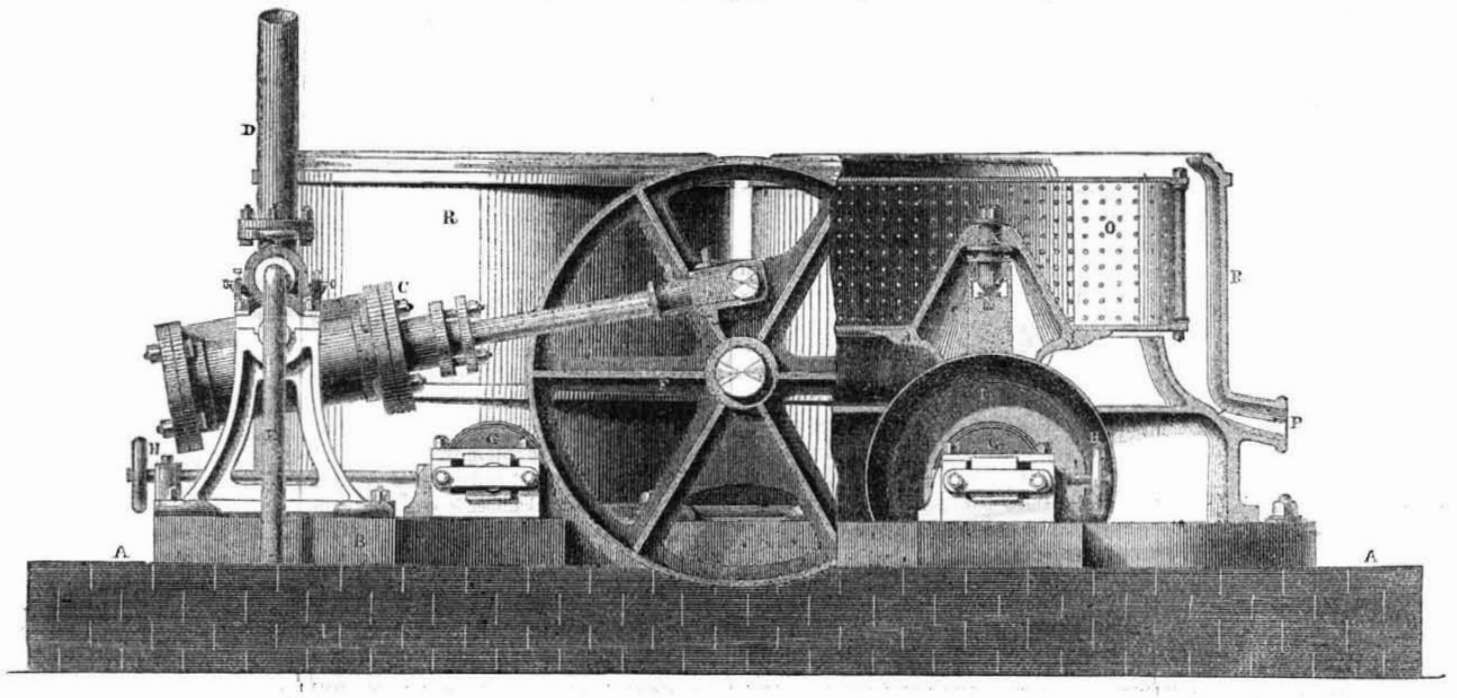
Improved Lamp.

Mr. Wm. H. Bull, of Meriden, Conn., has invented a new and useful improvement on Lamps for the burning of spirit fluids, whereby the common lamps are rendered capable of doing so without using a screw cap, as in the common kinds of spirit lamps. Lugs are cast on a collar of the lamp under the cap, which catch into a groove in the neck of the lamp, and thus firmly secure the cap and lamp. This kind of lamp can be made cheaper than the common kind, and the cap can be put on and taken off much quicker. The right of this improved lamp has been assigned to Mr. W. W. Lyman, of Meriden.

Improvement in Taps for Cutting Screws.

Mr. Alonzo B.Bailey, of Portland, Middlesex Co., Conn., has invented and taken measures to secure a patent for a valuable improvement in Taps for cutting screws. He makes the tap hollow, with its end open, and with a longitudinal groove cut in it, through which the liberated chips are carried during the cutting operation, thereby freeing the tap from all obstructions and from choking.

HURD'S CENTRIFUGAL SUGAR MACHINE.



The accompanying engraving is an elevation partly in section of this sugar depurating machine, exhibiting the manner in which it is driven, and the machinery employed for that purpose. Let us first present the description.

A A represents a foundation of masonry; B is a heavy cast iron foundation plate to which the engine and whole machine is attached; C is an oscillating steam cylinder and piston rod: D is an exhaust pipe of the engine; E is a steam pipe in which there is a cock (not seen) which regulates the supply of steam from the boiler to the engine; F is the main driving wheel connected to the piston rod, C; G G are two first driven friction pinions, covered with leather, which receives their rotary motion by friction from the first driver. The friction pressures are produced by the two screws, H H, which press against the composition boxes which the pinion shafts revolve in. I is a bevel second driver attached to the first driver pinion shaft, which revolves against a cone or bevel leather-covered pinion (partly shown) attached to the perforated copper and wire gauze drum, O, which is made to revolve by friction produced in the same manner as the first driven friction pinions, G G; J is the bottom of the drum made of heavy wrought iron plate; the top ring of the drum is also of wrought iron plates, the top and bottom plates are connected by a number of collar bolts (one shown in engraving) placed outside of the copper drum, O. K is a cast steel centre pin secured to the cone of the drum; L is an adjustable composition bush for centre pin; M is a heavy wrought iron stud around which the drum revolves and is secured to the strong exterior casing of cast iron R. N is a cast steel step on which the whole weight of the drum revolves; P is a spout for the discharge of the molassses.

It will be observed that between the adjustable composition bush, L, and the seat of the step, N, a recess is formed to contain oil which keeps the point of the centre pin and step constantly immersed, and obviates all tendency to heat or wear.

Mode of Working.—The sugar should be left in the coolers about twenty-four hours, which will complete the granulation, it is then placed in the drum, O, which is put in motion by turning the cock on pipe, E, admitting the steam in cylinder, C, which gives motion to the piston rod, and revolves the driving wheel, F, and by merely turning the screw, H H, the motion to the drum, O, will commence slow and gradually increase in velocity until in less than one minute it will have attained a speed of 1,000 revolutions as a constant velocity. The sugar by the centrifugal action is driven against the interior of the drum, O, while the molasses is forced through the spout, P, the crystals being retained within the drum can be brought to any degree of whiteness, by purging it of the molasses and by introducing (while in motion) white syrup, cane juice, or water.

Directions for Putting Down and Starting the Machine.—Select a location as convenient to the coolers as possible, and where a steam pipe can be connected from the boilers to the engine.

Make a foundation of masonry five or six feet deep, (the foundation bolts connected the same as would be done to put down a steam engine) cover the masonry with boards or planks, on which secure the foundation plate firmly and level, bolt the machines and engine to the plate, B, and connect pipes, and it is ready for operation, drive the engine about 120 revolutions per minute, which will give 1,000 revolutions on the drums, O, which, by many experiments, has proved to be the proper speed to do the work most effectually. Each drum will contain about 260 lbs. of green sugar, which will yield in running from 5 to 10 minutes, from 170 to 180 lbs. of beautiful dry sugar. The engine will consume steam of less than three horse power.

The manufacturers, G. B. Hartson & Co., have, by a series of experiments, succeeded in bringing this machine to that degree of perfection, that, at however great a speed it may be revolved, not the least jar or shake is perceptible, and is it as little liable to disarrangement as the plainest steam engine; in fact, the whole arrangement is so perfectly simple that any plantation negro with ordinary intellect could attend them without the least fear of accident.

This great invention will unquestionably prove as valuable to sugar makers as the gin has to the cotton grower. Each machine is capable of purging from 8 to 10,000 lbs. of sugar per day, and the sugar is ready for market the day after it is boiled. The actual yield is from 20 to 25 per cent. more sugar from the same quantity of cane juice; it improves the quality from 3-4 to 1 cent per lb. over the present method and leaves the sugar so thoroughly free from molasses that no loss is made by drainage in shipping.

These are but few of the advantages it has over the old process, but, from the above, any person at all acquainted with sugar making will perceive that these machines will be indispensable to all planters, and, to enable all to participate in their benefits, the established prices are such that they put them within the reach of the smallest planter.

It will be observed that the machinery is exceedingly compact, and the drum is driven in a most novel and ingenious manner. There is no cog gearing, no teeth on the bevels, but we have the same change of motion as that produced by the bevel cog gearing, through the instrumentality of friction cone pulleys. We admire the combination and arrangement of this machinery; it does credit to the constructor and designer. Belts and cog wheels are laid aside entirely, and we have here a great enlargement of the field, for a better adaptation and arrangement of all kinds of machinery.

It will be noticed that the engine is turning two centrifugal machines, and the first driving wheel and one drum are sections.

The proprietors of the patent are Messrs. W. H. Aspinwall, and E. J. Woolsey, this city; Messrs. Fellows & Co., New Orleans, are agents; G. B. Hartson, & Co., agents and sole manufacturers, New York.

For further information address or apply to Messrs. Fellows & Co., or G. B. Hartson & Co., Globe Iron Works, 33rd and 34th streets, near 11th avenue, this city.

Improved Seed Planter.

Mr. Myron Corey, of Jerseyville, Jersey Co Ill., has made an improvement in machinery for planting corn and other grain, for which he has taken measures to secure a patent. The nature of the invention consists in constructing the machine in such a manner that the corn or grain is conveyed from the hopper to plant the same in rows lengthwise or crosswise of the field, or as it is termed "sowing both ways." It also embraces the property of planting as many or as few hills as may be desired in a row by a very simple arrangement. There is also an indicator connected with the machine for marking the distance the corn or grain is to be dropped in hills or rows. This indicator marks out the spots on the ground, but it can be thrown out and in gear at pleasure. The machine is also adapted to plow, plant, and cover the seed all at one operation.

Smoke Condensing Grate.

Mr. Daniel Tompkins, of this city, has invented a new and useful improvement in Fire Grates, for which he has taken measures to secure a patent. The improvement consists in the employment of a condenser, which condenses the smoke and prevents chimnies from smoking; and, in connection with this, there is an arrangement of devices for shutting off all the draught, when desired to remove ashes or clean out the grate.

As grates have become very common, many improvements will no doubt be made on them. There is certainly a great field for improvement in the grates of our common stoves. There is not a single one in use that exhibits a just regard to convenience in cleaning out the fire and removing the ashes. There are grates which are complicated by countless complications, but their very complexity is the objectionable feature.

Improved Machine for Drying Clothes.

Mr. C. Martrat, of Valatie, Columbia Co., N. Y., has invented and taken measures to secure a patent for an improvement on the horizontal rotary Clothes Drier. The improvement consists in remedying a defect on the old kind, which consisted in the tendency of the arms to sag, and finally break down. The arms of the improved machine are so adjusted and arranged that their outer ends may be elevated above the inner ends at the centre, and there are small set screws by which the said arms are elevated to the proper distance and secured by clamps, which so effectually secure them that the arms will not be depressed by any weight of clothes that may be put upon the lines of the Drier. The assignees are B. E. & I. Buckman, No. 94 Fulton street, N. Y.

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More Improvements Wanted.

To question the great fact, of incalculable benefits having been conferred upon mankind by modern inventions, would be absurd; but with all our admiration for modern genius and improvements, it would just be as absurd to undervalue a good thing because old, as it would be to glorify a bad thing because new; *all* that was done of old, was neither indifferent nor bad, *all* that is done now is neither moderate nor good. We saw, and plane, and match with machinery, and there is cheap furniture in abundance, but it is generally as worthless as it is cheap. Our ancestors made things to endure for more than a summer's sunshine or a winter's storm, and when we wish to procure solid and durable articles, good prices have still to be paid as of old. Stockings and stuff of that kind are rattled off with surprising dexterity, and produced at re-reduced rates, but the knit work of our grandmothers, the idolized socks which were woven in the looms of their trembling fingers, are worth a dozen of the spider framed modern nether garments.

Our great modern improvements con ist in applying the power of water and steam, as substitutes for human and animal labor; and the blessings and benefits conferred by such applications of genius and science are beyond all price; but we are not at the end of improvements yet, nor shall we ever be at the end of them, while the human mind has a wish ungratified. Our steamboats now speed along at the rate of twenty miles per hour, and our railroads at the rate of forty and fifty. Some may think that all has been done that can be done, on both land and water, to make man pass through space with a velocity rapidly coming up to that of the ball projected from the cannon. But when Fulton's first boat cleft the waters of the Hudson, at the rate of eight miles per hour, and when the first locomotive attained the speed of twenty miles an hour, men of great minds did not doubt merely, but asserted that to look for greater results was an infatuation.

The time may yet come, (and it would certainly be a desirable invention) when men will cleave the air as swiftly and as safe as they now travel over the land by the iron horse. There is no good reason to doubt this as an impossibility, any more than to doubt our existence. Who a few years ago would have believed that pictures in all their glowing natural colors, could be painted in a few seconds by a sunbeam, yet it is even so, and such a picture has been on exhibition in London. Aerial locomotion is less problematical than the daguerreotype, although it has as yet been barely practicable. The day of its triumph cannot always be distant: some new idea out of the old beaten track which every æronaut seems to tread in, will yet be developed, and then the results upon society, no one can conjecture.

We yet want a great number of inventions to complete the catalogue of desirable improvements. We want a machine which could print as easily as we now can write; what a saving it would cause in steel pens and wretched scrawling. It would also be very desirable if a domestic loom was produced, which by turning a crank would drive the shuttle and weave the web with easy and unfailing certainty. We now have machines to sow and machines to mow, but we want a machine to make our shoes and to mend them too, as well. More attention has perhaps been given to quantity than to quality in modern improvements. Inventors have yet a wide field before them—it is the master mind which strikes out a new track. A host of new machines have yet to be invented, and a host of improvements made on those machines now in use, in order that quality may show forth as pre-eminently as quantity.

United States Steamships.

Four years ago, we believe, there were only four ocean steamships belonging to the United States. What changes a few years have wrought,—no less than six American steamships sailed from this single port last Saturday!

Patent Office Report for 1850.---No. 5.

Examiner Gale's Report.—Mr. Gale possesses the qualification of making an excellent Report: he presents one which appears to be indited with a spirit of candor. During the year 539 cases were referred to him for examination, all of which but 42 were disposed of. He mentions it as a *singular* thing, that 643 applications were examined by him on the previous year, or 146 more than in 1850. He says he is anxious to explain this, because it illustrates an important principle. The explanation is, that when Mr. Ewbank went into the Patent Office he ordered the Examiners to hurry up their business, to fulfil the old adage, "a new broom sweeps clean," in order to bring up all arrears of bu iness, at the end of the year. To meet this desire of the Commissioner, Mr. Gale states, an unusual amount of mental and physical labor was performed by the Examiners, and most of them brought up their arrears; "the business of my own desk," says this Report, "was reported as finished up to 1850." Now, mind the sequel, which is candidly stated, and which shows a daring recklessness on the part of the Patent Office, or else this Report does; here is what it says, "As generally happens in work done hastily, so it was here, much of the business had to be reviewed and re-examined, and the results showed conclusively that hasty examinations of applications for patents, like hasty legislation, are productive of great evils and little good." He believes, however, that "the business of examining patents was never done better than at the present time,," which statement exhibits a world of caution on the part of the Examiner, and may mean that the examinations were never well done, or were very well done, or were moderately well done at some time. He has four classes of subjects under charge, viz., Agriculture, Chemistry, Household Furniture, Wearing Apparel.—Leather was under his charge until April, 1850. Two hundred and thirty new patents were ordered, seven re-issues, two extensions, and one additional improvement. He had ten more applications than Examiner Renwick, and passed twenty-six more for patents. There were a number of very useful inventions presented and patented; no less than one hundred and seventeen for agricultural implements; fifty-three chemical, fourteen for leather; forty-three for household furniture; wearing apparel, eleven. Of the thirty patents for churns, we cannot say much for their utility. Of thirteen patents granted for plows, one with a flexible beam is the most prominent. For seed planters no less than twenty-seven were granted; we know that much attention has been and is still devoted to such machines, thus showing that there is a general dissatisfaction either with the complexity or principles of their construction. An ox yoke of a simple and good form was patented. It consists in having two staples, about three inches from the centre, instead of one staple in the middle, for the chain. The chain branches out into two parts, one of which has an adjustable device for varying the length of the branch chain, so as to give either ox the advantage, to let the lighter or weaker one draw his end of the yoke equally with the other.

He pays Mr. Paine a decided left-handed compliment, in respect to his water gas. He states that frequent inquiries had been made at the Patent Office about Paine's patent, but no such patent was granted; the only one granted for gas apparatus of any note, was Dr. Gesner's, for making the gas out of asphaltum. Mr. Gail Borden's soup bread patent is also particularly noticed.

A patent was granted for making glucose (grape sugar) out of corn meal, which is worthy of notice. Twenty-five bushels of corn meal are mixed with 150 gallons of water at a temperature of 175°, and to this is added 25 lbs. of oil of vitriol, to which, after stirring well, 50 more gallons of water are added, and the whole run into a boiler (a leaden one we presume), when the contents are boiled by high pressure steam. The boiling is continued until, by the trial of a little iodine, with a portion of the mixture in a saucer, it does not turn blue, which shows the operation to be complete. Chalk is then added to neutralize any of the free sulphuric acid, when the whole liquor above the sediment at the bottom, is run off and concentrated to crystalize. This is one of the wonders of chemistry; sugar is now made of corn, by boiling it along with a most virulent acid. A machine for washing dishes was patented, but this engine, if valuable, has not yet found its way into the restaurants of New York, the only good places in the world, for testing its powers. The re-issue of Hibbard's patent for Tanning is somewhat flatteringly noticed. We published the specification of this patent in our last volume and made some free comments on it, we have therefore no more to say about it at this time.

The Fire Annihilator---An Old American Invention.

We behold here and there in flaming characters "Philips' Fire Annihilator," an English invention, which has been patented here, and the patent sold for a fine large sum, it is said, and under the patronage of a fine big company, comprising Elisha Whittlesey, of Washington, and some other gentlemen of note, but mostly notable on account of the fame of the manager, the celebrated P. T. Barnum. Well, it turns out that there is a prior inventor of such an apparatus, and by establishing his just claim to the discovery and application of it, he will annihilate the annihilator, so far as Philips' patent is concerned.

We have received a communication from G. W. Michal, of Marion, McDowell Co., N. C., together with an article published in the "Mountain Banner," by Dr. Wm. H. Graham, which fully establishes the claim of the Doctor, as being the original inventor of the Fire Annihilator. He claims the invention as far back as 1837, and in November of that year, he filed his specifications at the Patent Office at Washington, and the following language of his filed papers will show that it embraces the very principles claimed in Philips' patent, which we published in No. 1, of this volume, and to which we beg leave to refer our readers:

"Your applicant claims that he has made a new and useful invention for extinguishing fire and flame with carbonic gas, in a manner new and useful; the gas to be generated by chemical process, condensed through a proper medium, in a machine; and with appropriate appendages and appliances can be directed to any spot, projected to any elevation, so as to make it a practical and efficient agent for extinguishing fire cheaply, safely, quickly, and is far superior to any other means hitherto used or known for extinguishing the flames of a steamboat on fire or a ship burning in the middle of the ocean. I declare my belief that this discovery is destined to save thousands and thousands of lives, millions multiplied by millions, in value of property.

Wm. A. Graham.

Now owing to the superior method of examination, so highly characterized by Examiner Fitzgerald, in his last report as having been introduced in 1836, what do our readers think was the answer given by the Patent Office to Mr. Graham? Here it is:

"Your invention does not possess that novelty and utility which would justify this office in issuing a patent. Nor is it, indeed, believed to be capable of being carried into effect." H. L. Ellsworth

To this Mr. Graham returned the answer.

"I think all the objections to my specifications and to granting me a patent are fully met by the fact that by a series of experiments carefully made by myself, I have fully tested the efficacy and practicability of extinguishing fire in the mode I propose, cheaper, quicker, and with more certainty than any other hitherto used or known, and I am ready to convince the Commissioner of patents and the public of its efficiency by an exhibition of its effects."

The claim of Dr. Graham was refused out and out, and Mr. Ellsworth said he might withdraw his money, but he declined, and was told that it would act as a perpetual caveat in his favor. Now if the examiners had done their duty, no patent would have been granted for Philip's Fire Annihilator—so much for the superior system of examination. At that time, says Dr. Graham, there was a distinguished individual at Washington, to whom he was introduced, who was said to have great influence with the Patent Office, and who told him he could get a patent at a word, if he would put his name as a co-inventor in the application, and give him one half of the patent. He refused to do this—he has the handwriting of this gentleman still in his possession.

This shows how the Patent Office was managed, and can we say it is any better now? Mr. Graham says he is going to Washington this winter to renew his claim; but this is not the way to proceed. He must renew his application at the Patent Office, and demand of the Commissioner an interference, and time will be given to try the case. He will then establish his claim, a patent will be granted to him, and the other will be declared void, unless there is a distinguished difference between them. We do not think much of the Fire Annihilator, for we consider that for all effectual purposes, carbonic acid gas never will be a cheap substitute for water, but we say, "honor to whom honor is due, and justice to whom justice is due."

We have heard of the Annihilator having put out a small fire here and there; well Mr. Graham set fire to an old frame house, in which he kindled three cart loads of shavings, and with two extinguishers on a wheel barrow, himself and a boy, when the house was in flames, opened the nozzles of his hose, and let in his gas on the house, which he extinguished in three minutes. So much for its efficacy, it did as much as Philips' is capable of doing. We do not say but Mr. Philips was an original inventor, but Mr. Graham is the oldest.

A Word to Apprentices.

Since the commencement of the present volume of the Scientific American, we have been favored with nearly twice as many subscribers, who have taken advantage of the inducement offered to clubs, as up to the same number (No. 5) on any previous volume.

We are particularly happy to find apprentices so active, this year, in getting up clubs; it shows they have a taste for the right kind of reading, and we venture to assert that most of such young men will become eminent in their profession. Many apprentices, no doubt, think their incomes are too small to admit of their paying $2 a-year for a newspaper, but let none of you abandon the idea of having the Scientific American on that account, but proceed at once and get up a club among your fellow workmen, which will enable you to receive your paper gratuitously. Appeal to your employers and get their names to head your list, then solicit the aid of your fellow-workmen, setting forth the object you strive for, and nine times out of ten we will warrant you success in your laudable effort. Let every apprentice strive to get a club, and let every proprietor and journeyman employed, encourage "The Apprentice Boy" by subscribing with him for the "Scientific American,"—it will be a satisfaction to you through life, to think you rendered your mite towards placing in the hands of a youth eager for practical knowledge, a publication from which no injury can arise, and from which much good assuredly will.

Fringe Twisting Machine.

The Editor of the Fitchburg Sentinel, who recently visited the Middlesex Mechanics' Fair at Lowell, after noticing several articles, says:

"But that which seemed to attract most attention, was the machine for twisting the fringe for shawls, invented by Mr. John Nesmeth and Wesley Sawyer. Till quite recently all such fringes were twisted by hand, and two shawls were a good day's work for a smart girl. Two or three years ago a machine was got up at Lawrence, which would twist ten or twelve per day, and this was thought a great improvement. The Lowell Machine will twist 150 shawls easily—both side and end fringes, and what is of great importance, will do the work in the piece, and also before the pieces are scoured, if necessary—so that any oil which the goods may receive in the operation, may be afterwards cleaned as easily as when they first leave the loom. The apparatus for twisting a double fringe at the ends of shawls is particularly ingenious and worthy examination."—[Worcester Transcript.

We would really like to know if this machine does anything more than merely double and twist the yarn into fringe; if not, we must say that machinery for making the French bullion fringe is old and well known. We have seen them in operation some years ago.

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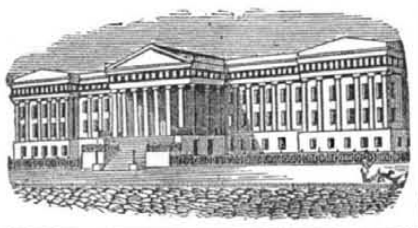

☞ Reported expressly for the Scientific American, from the Patent Office Records. Patentees will find it for their interest to have their inventions illustrated in the Scientific American, as it has by far a larger circulation than any other journal of its class in America, and is the only source to which the public are accustomed to refer for the latest improvements. No charge is made except for the execution of the engravings, which belong to the patentee after publication.

LIST OF PATENT CLAIMS

Issued from the United States Patent Office

FOR THE WEEK ENDING OCTOBER 7, 1851.

To E. C. Brett, of Great Barrington, Mass., for improvement in machines for Opening and Cleaning Flocks.

I claim the arrangement and combination of the conical revolving grater within the close grater case, combined with the blowers, in the manner and for the purpose substantially as described.

To D. & R. Pratt, of Elmira, N. Y.,, for improvements in apparatus for applying Flocks to Cloth.

We claim the revolving screen, having a beater within it, on a shaft, as described, in combination with the corrugated rollers, constructed and operating in the manner and for the purpose substantially as set forth.

To N. C. Towle, of Washington, D. C., for improvement in Tanning.

I claim the use of arsenic or arsenous acid, substantially in the manner and for the purposes herein set forth. The peculiar properties of arsenic, by which it tends to suspend the natural tendency of the animal fibre to decomposition upon the extinction of animal life, are well known, and of course they are not patentable; but their application to the processes of tanning and otherwise preparing skins and hides for useful purposes, by which they are rendered stronger and more durable, is believed not to have been heretofore known and used.

I do not, therefore, intend to limit my claim to any particular mode or period of using the article, but I shall apply it in such form, or in such strength of solution as the nature of the case may require, to effect the objects named. Workmen should guard against the absorption of the poisonous qualities of the arsenic, while immersing or handling the skins in the liquor, by using tools or wearing india rubber gloves. After the skins are taken out of the liquor, and rinsed thoroughly the danger ceases.

To C. F. Fisher, of New Orleans, La., for improvement in the Endless Chain Propeller.

I do not mean to claim the invention of the endless chain propeller, or the application of the endless chains to communicate power from one wheel to another. But what I claim is suspending the endless chain propeller, which is to be put in motion by an endless chain running on the side wheel, on the principal drum under water, in a rigid frame, inside of the water-tight chamber, the frame being capable of an upward and downward motion parallel to itself, by means of the four racks and pinions, or their equivalents, acted upon by gearing, connected each to each, said frame being connected with an indicator, by which the situation of the propeller may be ascertained, the whole constructed substantially in the manner and for the purposes described.

Second, I claim the sliding lid to the aperture in the bottom of the vessel, through which the propeller projects when lowered for operation, but when the propeller is raised inside of the vessel, the lid closes the aperture, so that the speed of the vessel may not be impeded when under sail alone, by the action of the water on the aperture in the bottom, said sliding lid being worked by a screw, or its equivalent, in connection with an indicator, by which the position of the lid can be seen, substantially as described.

To W. Clements, of Ellerslie, Ga., for improvement in devices for sowing in a Seed Planter.

I claim the novel manner of discharging the seed by the natural motion of the horse, or other animal, while in the act of walking and propelling the drill, without the aid of wheels, with the arrangement of levers, arms, &c., for discharging the seed, or their equivalents, operating in the manner and for the purpose set forth.

To James Fulton, of Louisville, Ky., for improvement in Escapements for Time Pieces.

I claim the combination of the pallets and lever or levers, as set forth, with the described mode of communicating impulse to the balance in time pieces which keep time by means of a balance.

To J. H. Murrill, of Manchester, Va., for improvement in Running Gear of Locomotives.

I claim the manner of employing the unflanged driving wheels, connected and arranged as described, with the flanged truck wheels at the forward end of the engine, in combination with the flanged driving wheels, for the purpose of increasing the traction or adhesion of the driving wheels to the rails for overcoming steep grades without increasing the weight of the engine.

To Wm. Scott, of Rising Sun, Ind., for improvement in Revolving Boilers.

I claim the combination of the small cylinders (two) provided with apertures and rims, as described, with the distributing chamber; the whole revolving round a common axis, and operating substantially as described.

To Joshua Stevens, of Chicopee, Mass., (assignor to Mass. Arms Co.), for improvement in Revolving Breech Pistols.

I do not claim to make the latch hook alone revolve on the barrel, but I claim the improvement of so connecting or combining the latch hook, the slide bearing of the rammer and the lever with the barrel, by means of the swivel tube, or any analogous contrivance, as to enable them to be all simultaneously turned laterally, or revolved around the axis of the barrel, and thereby remove any obstruction to the elevation or upward movement of the barrel, such as may be necessary in order to effect the removal of the cylinder of the charging chambers from the arbor on which it is supported.

To Le Grand C. St. John, of Buffalo, N. Y., for improvement in apparatus for Warming Air and Water for dwellings.

I claim the construction of a fire-proof apartment in houses, extending from the lowest extremity of the house to the roof, with the furnace at the bottom, the smoke pipes of other fires entering it, and winding along its walls to a chimney at the top, and with openings to let the heat in the apartment into the house or up the chimney, and also for the construction of cisterns within the fire-proof apartment, with pipes, as described.

To Orion Thornley, of Lebanon, Ind., for improvement in machines for Cutting Screws on Posts and Rails of Bedsteads.

I claim the trifurcated travellers, in combination with the right and left screw axle, the carriage, saddles, hollow axle, and cutters, (two), whereby the threads of two beam tenons and two sockets are cut by one and the same operation; the several devices being constructed and arranged in the manner and for the purpose set forth.

To Patrick Killin, of Mount Healthy, Ohio, for improvement in Portable Elevated Ovens.

I claim the arrangement, as described, of the inner and outer concentric tubes, with respect to the oven and pot hole, as described, whereby the oven is equally heated by a small fire, and the heat is directed by the inner upright pipe against the bottom of the kettle or other vessel, thus enabling the user to conduct simultaneously the several operations of baking and boiling with a small fire and with economy of fuel.

To Spencer Lewis, of Rochester, N. Y., for improvement in machines for Cutting Screws on Rails for Bedsteads.

I claim, first, in combination with the central screw shaft, through which the rotation of the cylinder is effected, the hollow screw shaft, provided with an inverse screw thread and the cylindrical case, having an inverse screw thread matching with the male screw thread of the hollow shaft, the whole being arranged as set forth, and operated by means of the bolts (two) and cam on the cross head, in such a manner as to feed the cylinder, frontward, simultaneously with a right or leftward rotation thereof, as fully described,

Second, I also claim the employment of the screw shanks (two) provided with tooth wheels (two) made to match with toothed or ribbed plates (two), forming one of the sides of each box, the outer ends of said screw shanks being confined in inverse screws formed in plates, *d d*, whilst their inner or pointed ends are supported by plates, K K, having projections against which the shoulder of the rail acts, for the purpose of actuating said screw shanks rotarily, for imparting thereto a lateral movement in such a manner as to cause their pointed ends to enter the rail, and be locked thereto by the spring levers, said screw shanks being detached from the rail when unlocked, by simply withdrawing the implement these form, as described.

Third, I further claim the employment of the semicircular plate of the cross-head, in combination with the spring levers (two), for the purpose of actuating said spring levers, in locking and unlocking the plates, K K, of the screw shanks at the terminus of the receding movement of the cylinder, whether cutting the right or left screw, as described.

Fourth, I also claim confining each V-shaped cutter to the reversible cylinder, by means of the segmental brace plate, notched at one end, so as to interlock with the end of the shank of the cutter, projecting through an opening in the cylinder, whilst its opposite end is made to fit against the frontward portion of the cutter, as shown, said segmental brace plate being secured by means of a screw bolt passing through it and the cylinder, and pressing upon the shank of the cutter in such a manner as to form a complete lock thereto, there being a binding pressure at four points upon the cutter, viz., at either extremity thereof, at the connection of the brace plate with the frontward end of the cutter, and at the centre by the confining screw bolt, thus rendering it impossible to move the cutter without fracturing the segmental brace plate and displacing the screw bolts, as described.

To Clement Masserano, of Turin, Sardinia, (assignor to Clement Masserano, Josephine Wickliffe, administrator of R. Wickliffe, Jr., of Lexington, Ky., Charles Caringi, Andre Crestadora, Pellegro, Rocca and Louis B. Migone, of Genoa, Sardinia, for improvements in Locomotives, moved by the Power of Animals.

I claim, first, the combination with the endless platform of an adjusting apparatus, by means of which the inclination of the platform to the frame of the power carriage may be varied to enable the horses to work to the best advantage, whether to accelerate or to retard the movement of the impulsoria, in traversing, ascending or descending grades.

Second, I also claim the method of connecting the frame of the impulsoria with the pilot, by means of a longitudinal shaft, which is fitted with mechanism by means of which the impulsoria can be adjusted tranversely to keep the driving axle level, and to prevent the endless platform from sloping crosswise when traversing a road, one of whose sides is higher than the other.

And lastly I claim in an apparatus adapted to propulsion by animals, substantially as described, the employment of a single driving wheel, arranged in such manner as to admit of being leaned towards the hill, in travelling across slopes to prevent a transverse sloping of the endless platform on which the animals walk when the wheel thus arranged is steadied by a pilot before and a follower behind, or their equivalent, substantially as set forth.

[This patent was granted, we suppose, on account of its novelty. It is no doubt novel to disentomb some ancient Assyrian Bull, and we suppose that, as Layard has recently disentombed one of these gentry, this invention is brought forth to be yoked to the horns of the Oriental Mammal. We can conceive of no other good reason why a patent was granted for an ox impulsoria for railroads. For a view of an animal impulsoria, we refer our readers to Brandreth's Patent Cyclopede, page 619 "Hebert's History of the Steam Engine."]

To C. S. Buckley, of Macon, Ga., for improvement in Circuit Changes for Electro Magnetic Telegraphs.

I claim the circuit changer, substantially as described, in combination with the arrangement of wires, magnets, &c., as set forth, for the purpose of enabling the operator at either one of two distant stations, to arrange the connections at the intermediate stations, so that he can write through to the other end station at pleasure. [This we have reason to believe is a very excellent improvement on telegraphs.]

Petition for Extension of a Patent.

U. S. Patent Office, October 6, 1851.—On the petition of M. Sorel, of France, praying for the extension of a patent, granted to him for an improved method of preserving iron and steel from rust or oxidation, for seven years from the expiration of said patent, which takes place on the seventh day of December, 1851:

It is ordered that said petition be heard at the Patent Office on Saturday, the 6th of December, 1851, at 12 o'clock M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specifically set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

THOS. EWBANK, Com. of Patents.

For the Scientific American.

Patent Office Building.

Allow me to trouble you and your readers with a few remarks in reply to the article in your paper of the 4th inst., page 18.

1st—When I said that "the original Plan contemplated a brick building with wooden floors, filled in between the joists with brick," I stated nothing but the fact; and if reference is had to the fire-proof character of the building by the Committee, this filling between the joists with brick constituted that fire-proof character—no brick arching, as executed in the building, was ever thought of.

2nd—If there were any "plans of the various floors, made by Mr. Elliot, with vertical, longitudinal, and transverse sections, and a perspective view of the building,"—they never came into my possession when appointed the Architect to execute the building; though, as I stated, sought for—consequently I had to begin, *de novo*, to originate all the details.

I have nothing further, Messrs. Editors, to state, than my regret to have troubled you or your readers, with my remarks on this subject—I was driven into the defence I made in your journal (page 387, Vol. 6) in reply to the article you refer to as in No. 20, where the writer seemed to wish to accord the merit of this work to the mere projector of the outline of the Plan, paying no regard to, nor even once naming, the Architect who had all the labor of filling up the details, and executing the work in a manner that received the good opinion of all, including the gentleman you name as the projector of the original Plan. Respectfully,

ROBERT MILLS, Architect.

Washington, Oct. 6, 1851.

Mechanism.

We select the following from our excellent cotemporary, the "Yankee Nation," published in Boston for $2 per annum:

"How grateful to the eye of a mechanic is perfection in machinery, or works of art of any kind. We do not mean by this to include all in our remarks who work at mechanical branches, for there are some who have not an idea above the crank of a grindstone or a wood saw. We mean men who have brains to contrive as well as construct, and to such, and such only, do our remarks apply. These thoughts are awakened by the recent exhibitions which have taken place not only in the many different parts of our country, but also of our world. We were particularly struck with the force of this on our first visit to the Mechanics' Fair, at Lowell, where, in striking contrast, were exhibited the perfection of modern improvement in the shape of a cotton spindle, and one of the first ever used in this country. It is by contrast, only, we can see the improvement; placed side by side, they exhibit their perfections, as also their imperfections. To such as desire improvement in scientifics, we recommend the Scientific American, published in New York city."

The Eatonton Railroad.

The Macon Journal & Messenger says:—"The work is progressing rapidly. There are now about 300 men employed upon the grading and masonry, and it is confidently expected that the next crop of Putnam will be carried to market over the road."

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TO CORRESPONDENTS.

T. B., of Mass.—We are not able to tell you whether the Collins or CunardLines carry different pressures of steam. There is a difference in the build of the hull, and that difference is in favor of the American ships.

C. H. S., of La.—There is no patent for mixing hydraulic cement: use a large quantity of water, and mix it well by beating and stirring in a wooden vessel; we speak of common cement. The man you speak of may have a new improved cement of his own: we know of some kinds that are kept secret, because it cost something to purchase the receipt.

A. V. G., of Canada—There are a number of contrivances for operating switches such as you speak of; none of them have been adopted, and it is doubtful whether railway corporations would be willing to risk any of them in preference to the charge of an individual: up to this time they have not. Thank you for the club of subscribers.

W. G., of Ill.—Your communication in (hieroglyphics) Fondtipografik language, as you are pleased to call it, has been perused, but thought not to be of sufficient interest to publish. We admitthat the first part of your communication is true, viz., that our journal is the advocate of improvements, but we fear if we should advocate such a theory as you profess to have discovered, in reforming the English language, the majority of our readers would think we had reversed our onward march and were *progressing backwards.*

S. L. G., of N. Y.—Your name has been corrected on our books; we cannot inform you what the largest locomotive in the country does weigh.

H. H. M., of Ill.—From your drawing we judge it is the same as the compound rail: you have been anticipated. We cannot see upon what point we could base a claim to the level you speak of, and assuredly it cannot be combined with your other patent, for it is entirely distinct: the improvement in the pillar for the purpose stated, we believe is patentable.

E. G. D., of Va.—Alabaster is a stone, usually white, resembling marble, but soft enough to be scratched by iron; the term is said to be derived from Alabastim, a town of Egypt. 1st. Gypseous Alabaster is a natural semi-chrystalline sulphate of lime forming a compact gypsum of various colors and employed in making statues and vases. 2nd. Calcareous Alabaster is a carbonate of lime, deposited by the dripping of water in stalatitic caves, and frequently found as a yellowish white deposit in certain fountains: the Oriental Alabaster is of this kind.

H. M. S., of N. Y.—Your arrangement for digging potatoes is thought by us to possess novelty sufficient to warrant an application for Letters Patent; its construction and operation we fully understood.

A. & W. B., of N. Y.—The engravings of your saw sash will appear next week; press of matter for a few weeks past has prevented your engravings appearing earlier.

R. O., of Pa.—You had better send a model of your Governor for our examination, or we will examine it by a sketch, if you prefer.

S. A., of N. Y.—Do not use two or more cylinders in the Prime Conductor, expecting to get intensity from extension of surface. The Rifle has been condemned by some—personally, all we can say about it is, we do not recommend it.

W. W., of Pa.—We have seen an experiment made of the very plan you describe, but it could not elevate the apparatus an inch above the ground: we want the discovery of a new power to do so.

J. B. S. H., of Mass.—The suggestions made by you were inserted in the specification before it was forwarded to the Patent Office.

S. W. & R. M. D., of Mass.—Your remarks were timely made, and all the necessary alterations attended to previous to filing your papers.

W. A. G., of Ky.—After you furnish us with a model of your invention we can prepare the drawings and specifications therefrom. The fees in your case would be $20, exclusive of Government fees, which are in all cases $30 in addition.

J. K., of N. H.—We have no numbers of Vol. 3 to send you.

S. C., of R. I.—We suppose that Arnott would not really disagree with you about the immovable fulcrum, but the question just lies in "what is a movable fulcrum?"

J. B. W., of N. C.—The great object in extinguishing fires is "the cheapest method;" nothing, in our opinion, can compete with the force pump and water alone. We believe your plan for finishing rooms, such as the Patent Office, is new; it is, in our opinion, a good one, and rooms could be rendered very handsome at but little expense; but we do not think you would be able to secure a patent. We are much obliged to you for your kindness.

J. C., of Geo.—The description you give of the fastener will be proof against subsequent parties: we shall file away your letter for that purpose.

W. H. C., of Mobile.—We called upon Sturges, Clearman & Co., about the box, and they are trying to find it out; the result will be communicated to you by letter.

A. F. W., of Pa.—We could send you a good case of mechanical instruments for $20, and a first rate case for $25.

J. B. L., of Ohio.—We know of no such apparatus in use, or ever having been in use, for the bottles, as you mention; to us it is quite new and must be very useful.

J. B. F., of Mo.—We have seen a wheel with the same kinds of blades as you have sent in your sketch, it was used on a boat on the North River: it did not succeed.

G. B. D., of Gosport, I. W.—You may send on the sketches and we will examine them.

Money received on account of Patent Office business for the week ending October 11th.

B. S. W., of L. I., $40; T. S. B., of Phila., $30; D. W., of N. Y., $45; P. P. R. H., of O., $50; T. E. S., of Pa., $30; B & W., of Ct., $10; W. R., of Vt., $10; L. N., Jr., of Mass., $30; N. H. L., of S. C., $55; D. E. McD., of N. Y., $30; M. R. & D. R. L., of Miss., $20; S. G., of N. Y., $20; W. D., of L. I., $50.

Specifications and drawings belonging to parties with the following initials have been forwarded to the patent office during the week ending Oct. 11th.

E. B. L., of N. Y.; T. S., Jr., of N. Y.; H. M., of Pa.; M. M. C., of N. Y.; B. S. W., of L. I.; W. D., of L. I.; L. N., Jr., of Mass.; W. B., of N. Y.

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Of Volume 6, all: price in sheets, $2; bound, $2,75.

New Edition of the Patent Laws.

We have just received another edition of the American Patent Laws, which was delayed until after the adjournment of the last Congress, on account of an expected modification in them. The pamphlet contains not only the laws but all information touching the rules and regulation of the Patent Office. We shall continue to furnish them for 12 1-2 cts. per copy.

Patent Claims.

Persons desiring the claims of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office;—stating the name of the patentee, and enclosing one dollar as fee for copying

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American and Foreign Patent Agency

IMPORTANT TO INVENTORS.—The undersigned having for several years been extensively engaged in procuring Letters Patent for new mechanical and chemical inventions, offer their services to inventors upon the most reasonable terms. All business entrusted to their charge is strictly confidential. Private consultations are held with inventors at their office from 9 A. M., until 4 P. M. Inventors, however, need not incur the expense of attending in person, as the preliminaries can all be arranged by letter. Models can be sent with safety by express or any other convenient medium. They should not be over 1 foot square in size, if possible.

Having Agents located in the chief cities of Europe, our facilities for obtaining Foreign Patents are unequalled. This branch of our business receives the especial attention of one of the members of the firm, who is prepared to advise with inventors and manufacturers at all times, relating to Foreign Patents. In the item of charges alone, parties having business to transact abroad, will find it for their interest to consult with us, in preference to any other concern.

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"Mr. Byram is a rare mechanical genius."—[Jour. of Commerce. 5tf.

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ENGINE AND HAND LATHE.—The undersigned, agents for the Guilford Manufacturing Co., offer, at low prices, for sale Lathes of various descriptions, from 2 feer to 20 feet shears, with or without Screw gear. BOYD & KEEN,
5 2* No. 11 Gold street.

Foreign Patent Office.

MESSRS. MUNN & CO. transact business connected with Patents in all European countries, where this species of property is recognized. They take pleasure in referring parties to Smith Dunning, Jr., N. Y.; Ebenezer Barrows, N. Y.; Charles Starr, Bible House; William Van Anden, Poughkeepsie; Mortimer & Gardiner, Charleston, S. C.; William Bushnell, N. Y.; J. S. Prouty, Geneva, N. Y.; Gail Borden, Jr., Galveston, Texas, and to all others for whom they have done business.

KELLY & CO., New Brunswick, N. J., Foundry and Machine shop, manufacturers of stationary Engines, India Rubber Machinery, Mill Gearing, and stove castings &c. Articles made in the machinery line to order with dispatch and in the most workmanlike manner. Parties wanting machinery or castings made will be waited on within any reasonable distance. Orders solicited. 47 12*

HUTCHINS' CRANK INDICATOR.—The subscriber having purchased the entire right of Hutchins' Patent Crank Indicator, would respectfully inform the public that he is ready to supply orders or sell territory. The Indicator has been used aboard the "Northerner," "Bay State," "Cataract," "Niagara," "Ontario," and "Lady of the Lake," the Captains and Engineers of which have all given their testimonials of approbation. Address G. S. WORMER, Steamboat Office, Oswego, N. Y. 51 6*

WE HAVE FOR SALE, a bound set of the London Patent Journal; consisting of the first 10 volumes. It is a valuable work for the Inventor, Mechanic, or manufacturer. The last Volume comes up to near March 29, 1851. Price $30.
MUNN & CO.

ALCOTT'S LATHES.—I would say, in regard to the Alcott Lathe I purchased of you about a year ago, that it will perform all that it is represented to, and could I not get another I would not take $50 for it, so that you need not be afraid to recommend them. F. R. BARTLETT.
Galesburg, Ill. 2tf

1851 TO 1856.----WOODWORTH'S PAtent Planing Machines in New York and Northern Pennsylvania—Ninety-nine hundredths of all the planed lumber used in our large cities and towns continues to be dressed with Woodworth's Patent Machine. Price of a complete machine for planing, $150: for planing, tongueing and grooving, $700. For machines and rights to use them at Morrisania, Chester, Sag Harbor, Yonkers, Poughkeepsie, Whitehall, Plattsburg, Rouse's Point, Malone, Pottsdam, Norwich, Ithaca, Attica, Tonawanda, Meadsville, New Castle, Warren, Towannda, Williamsport, Lock Haven, Wilkesbarre, Scranton, Carbondale, Honesdale, and the other unoccupied towns and counties of New York and Northern Pennsylvania, apply to JOHN GIBSON, Planing Mills, Albany, N. Y. 3 3*

TILTON'S Patent Violin.—The undersigned having patented his Violin Improvement, is prepared to exhibit it to the public. Being now in New York, he may be found at No. 18 Park Place (Mr. J. [illegible] will be glad to see such gentlemen as take an interest in his invention. All communications addressed "Wm. B. Tilton & Co.," as above, or at Carrolton, Pickens Co., Ala.
3 12* WM. B. TILTON.

LEROW & BLODGETT'S PATENT ROTARY SEWING MACHINE.—The undersigned, having purchased the right to use, sell, and manufacture these machines for the States of Alabama and Mississippi, and their other business engagements preventing them from giving it their personal attention, they are disposed to sell out their right to the above-mentioned States, or counties in them, if preferred, upon favorable terms. To an energetic and industrious man we will sell upon such terms as will insure a large and handsome profit. Apply to Mr. W. SCRUGGS, of the firm of Messrs. Scruggs, Drake & Co., Charleston, S. C., or to WM. MAILLER, Decatur, Ala. 4 8*

BROOM MACHINERY.—The most improved and durable machinery for the manufacture of Brooms, for sale by JACOB GRAY, Scotia, Schenectady Co., N. Y. Address post-paid. 4 8*

STEAM ENGINES FOR SALE.—One 8 horse-power engine, boiler, heater, and apparatus complete—price $750; one 5 horse two cylinder engine, with governor, pump, and band wheel—price $200; one 6 horse ditto (new)—price $225. Also, now finishing on hand, slide and hand lathes, upright drills, mortising machines, &c. Inquire of CARPENTER & PLASS, corner of Hester and Elizabeth streets New York. 4 4*

PRACTICAL AND SCIENTIFIC BOOKS.—"History of Propellers and Steam Navigation, with Biographical Sketches of Early Inventors;" by Robert Macfarlane—Editor of the Scientific American: 1 Vol., 12mo.—75 cents. "Practical Model Calculator," by Oliver Byrne: parts 1, 2, and 3—price 25 cts. "Practical Metal Worker's Assistant," by Holtzappfel & Byrne 8mo., illustrated—$4. "Practical Cotton Spinner," by Scott & Byrne, with large working drawings, 8mo.—$3,50. "Norris on the Locomotive Engine," 12mo.—$1,50: together with other important scientific books. HENRY CAREY BAIRD, (successor to E. L. Carey), publisher, Philadelphia. 42

PROFESSOR ALEX. C. BARRY'S TRICOPHEROUS OR MEDICATED COMPOUND.—Professor Barry does not hesitate to put his Tricopherous, for the two grand requisites of efficacy and cheapness, against any preparation for cleansing, renewing, preserving, and strengthening the Hair, that has ever been advertised or offered for sale. He challenges the associated skill and science of the medical world to produce, at any price, an embrocation that will reduce external irritation, cure ordinary cutaneous diseases and severe cuts, sprains, pains, &c. Price 25 cents per bottle. To be obtained, wholesale or retail, of Mr. A. C. BARRY, 137 Broadway. 4 3m*

PALMER'S RTIFICIAL LEGS.—Manufactured at Springfield, Mass., and 376 Chestnut-st. Philadelphia, by Messrs. Palmer & Co.—All orders from New York and New England must be made to Palmrr & Co. Springfield, Mass.—"I have examined carefully the Artificial Leg, invented by Mr. B. F. Palmer; its construction is simple and its execution beautiful; and what is most important, those who have the misfortune to require a substitute for a natural limb and the good fortune to use it—all concur in bearing practical testimony to its superiority in comfort and utility. VALENTINE MOTT.
New York, Jan. 29, '51. 39 6meow*

A YOUNG MAN who has had considerable experience in this country and Europe, in the construction aud designing of machinery, &c., is desirous of meeting with a situation as Mechanical Draughtsman or Manager. Address "H. E.," care of Stokes & Brother, Philadelphia. 1*

SCRANTON & PARSHLEY, Tool Builders, New Haven, Conn., have on hand six 12 ft. slide lathes, 28 in. swing; also four 8 ft. do.; 21 in. swing, with back and screw gearing, with all the fixtures; one 5 ft. power planer; 12 drill presses, 4 bolt cutting machines, 30 small slide rests; 5 back geared hand lathes, 21 in. swing; 15 do. not geared; 8 do. 17 in. swing on shears 5 1-2 feet; 25 ditto with and without shears, 13 in. swing; counter shafts, all hung if wanted suitable to the lathes. Scroll chucks on hand; also index plates for gear cutting. Cuts of the above can be had by addressing as above, post-paid. 47tf

BEARDSLEE'S PATENT PLANING MAchine, for Planing, Tonguing and Grooving Boards and Plank.—This recently patented machine is now in successful operation at the Machine shop and Foundry of Messrs. F. & T. Townsend, Albany N. Y.; where it can be seen. It produces work superior to any mode of planing before known. The number of plank or boards fed into it is the only limit to the amount it will plane. For rights to this machine apply to the patentee at the abovenamed foundry—or at his residence No. 764 Broadway, Albany. GEO. W. BEARDSLEE. 5tf

TO PAINTERS AND OTHERS.—American Anatomic Drier, Electro Chemical graining colors, Electro Negative gold size, and Chemical Oil stove Polish. The Drier improves in quality by age—is adapted to all kinds of paints and also to Printers' inks and colors. The above articles are compounded upon known chemical laws and are submitted to the public without further comment.—Manufactured and sold wholesale and retail at 114 John st. N. Y. and Flushing L. I. N. Y.; by
QUARTERMAN & SON
48tf Painters and Chemists.

MACHINERY.—S. C. HILLS, No. 12 Platt-st. N. Y. dealer in Steam Engines, Boilers, Iron Planers, Lathes, Universal Chucks, Drills; Kase's, Von Schmidt's and other Pumps; Johnson's Shingle Machines; Woodworth's, Daniel's and Law's Planing machines; Dick's Presses, Punches and Shears; Morticing and Tennoning machines; Belting; machinery Beal's patent Cob and Corn mills; Burr mill and Grindstones; Lead and Iron Pipe &c. Letters to be noticed must be post-paid. 1tf

LAP-WELDED WROUGHT IRON TUBES for Tubular Boilers—from 1 1-4 to 7 inches in diameter. The only Tubes of the same quality and manufacture as those so extensively used in England Scotland, France and Germany—for Locomotive Marine and other steam Engine Boilers.
THOS. PROSSER & SON, Patentees,
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LATHES FOR BROOM HANDLES, Etc.—We continue to sell Alcott's Concentric Lathe, which is adapted to turning Windsor Chair Legs, Pillars, Rods and Rounds; Hoe Handles, Fork Handles and Broom Handles.

This Lathe is capable of turning under two inches diameter with only the trouble of changing the dies and pattern to the size required. It will turn smooth over swells or depressions of 3-4 to the inch and work as smoothly as on a straight line—and does excellent work. Sold without frames for the low price of $25—boxed and shipped with directions for setting up. Address (post paid) MUNN & CO.
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IMPORTANT TO INVENTORS.—Inventors residing in the West, requiring models for their inventions to be deposited in the Patent Office, will find it to their advantage to call at PLATT EVEN'S, Jr., 187 Walnut street, Cincinnati, Ohio. Philosophical instruments, light machinery, and fine jobbing, promptly attended to. Orders received with designs by mail, post-paid. 4 2*

WOOD'S IMPROVED SHINGLE MACHINE—Patented January 8th 1850, is without doubt the most valuable improvement ever made in this branch of labor-saving machinery. It has been thoroughly tested upon all kinds of timber and so great was the favor with which this machine was held at the last Fair of the American Institute that an unbought premium was awarded to it in preference to any other on exhibition. Persons wishing for rights can address (post-paid) JAMES D. JOHNSON, Easton Conn.; or WM. WOOD, Westport; Ct. All letters will be promptly attended to. 37tf

LEONARD'S MACHINERY DEPOT, 109 Pearl-st. 60 Beaver N. Y.—The subscriber is constantly receiving and offers for sale a great variety of articles connected with the mechanical and manufacturing interest, viz.: Machinists' Tools—engines and hand lathes; iron planing and vertical drilling machines; cutting engines, slotting machines; bolt cutters; slide rests; universal chucks &c. Carpenters' Tools—mortising and tennoning machines; wood planing machines &c. Steam Engines and Boilers from 5 to 100 horse power. Mill Gearing—wrought iron shafting; brass and iron castings made to order. Cotton and Woolen machinery furnished from the best makers. Cotton Gins; hand and power presses. Leather Banding of all widths made in a superior manner; manufacturers' Findings of every description. P. A. LEONARD. 48tf

MANUFACTURE OF PATENT WIRE Ropes and Cables—for inclined planes, suspension bridges, standing rigging, mines, cranes, derick, tillers &c.; by JOHN A. ROEBLING; Civil Engineer—Trenton N. J. 47 1y*

RAILROAD CAR MANUFACTORY—TRACY & FALES, Grove Works, Hartford, Conn. Passage, Freight and all other descriptions of railroad Cars, as well as Locomotive Tenders, made to order promptly. The above is the largest Car Factory in the Union. In quality of material and in workmanship, beauty, and good taste, as well as strength and durability, we are determined our work shall not be unsurpassed. JOHN R. TRACY,
39tf. THOMAS J. FALES.

BEST CAST STEEL AXLES AND TYRES, (a new article,) for Railroad Carriages and Locomotives. The quality of this steel is sufficiently attested in the announcement that it has carried off the first prizes awarded at the World's competition of 1851, in London. The axles are in general use on the Continent, and are now offered in competition with any other that can be produced; and to be tested in any way that may be desired by the engineers of the United States, either by impact or by torsion. This steel is manufactured by Fried Krupp, Esq., of Essen, in Rhenish Prussia, represented in the United States by THOS. PROSSER & SON, 28 Platt st., N. Y.
2tf.

TO ENGINEERS.—A new Work on the Marine Boilers of the United States, prepared from authentic Drawings and Illustrated by 70 Engravings—among which are those of the fastest and best steamers in the country—has just been published by B. H. BARTOL, Engineer, and is for sale at the stor of D. APPLETON & CO.,
1 12* 200 Broadway.

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SCIENTIFIC MUSEUM.

Power of Condensation Possessed by Charcoal.

Some gases are absorbed and condensed within the pores of the charcoal, into a space several hundred times smaller than they before occupied; and there is now no doubt they there become fluid, or assume a solid state. As in a thousand other instances, chemical action here supplants mechanical forces. Adhesion or heterogeneous attraction, as it is termed, acquired by this discovery a more extended meaning; it had never before been thought of as a cause of change of state in matter; but it is now evident that a gas adheres to the surface of a solid body by the same force which condenses it into a liquid.

The smallest amount of a gas—atmospheric air for instance—can be compressed into a space a thousand times smaller by mere mechanical pressure, and then its bulk must be to the least measurable surface of a solid body, as a grain of sand to a mountain. By mere effect of mass—the force of gravity—gaseous molecules are attracted by solids and adhere to their surfaces; and when to this physical force is added the feeblest chemical affinity, the liquefiable gases can not retain their gaseous state. The amount of air condensed by these forces upon a square inch of surface is certainly not measurable; but when a solid body, presenting several hundred square feet of surface within the space of a cubic inch, is brought into a limited volume of gas, we may understand why that volume is diminished, why all gases without exception are absorbed. A cubic inch of charcoal must have, at the lowest computation, a surface of one hundred square feet. This property of absorbing gases varies with different kinds of charcoal; it is possessed in a higher degree by those containing the most pores, that is, where the pores are finer; and in a lower degree in the more spongy kinds, that is where the pores are larger.

Cure of Rattlesnake Bites.

A correspondent of the Baltimore American, writing from Russell county, Virginia, cites two cases, one of a negro man and the other of a boy, in which severe bites of rattlesnakes have been cured by the free administration of brandy, half a tumbler full at a time every few minutes until a quart had been taken. We have heard eye-witnesses attest the virtue of this remedy. It is said that the liquor in such cases does not intoxicate.—Washington Republic.

[The above is certainly a very easy, if an effectual cure; but when young Dr. Wainwright, of this city, was bit by a rattlesnake—of which bite he died—it was stated that the use of ardent spirits hastened his death. We never believed the assertion; but it is well known that the bite of the rattlesnake is not very dangerous at any time, in comparison with what it is after long fasting. It is probable that some of the simple remedies stated to have proved effective, were so only in cases where water might have been just as good. Tobacco has been stated to be good for the bite of the snake, and so has strong coffee, olive oil, ammonia, and various other things; personally we have had no experience, and hope we never shall, but for the sake of others it is good to present different opinions.

Size for Draughtsmen.

A good sizing used by draughtsmen, after scratching or spunging paper, is composed of ½oz. of white gelatine, ½oz. of white soap, and ½oz. of alum; the gelatine and soap are dissolved together in a quart of warm water, and alum is added, previously reduced to powder and dissolved in a separate vessel. As soon as this solution of alum is poured into the other liquid it becomes as white as milk; it must then be cooled and bottled for use. A thin coat of this, laid with a hair brush on the scraped part of the paper, restores its primitive size and smoothness.

Varnish for Oil Paintings.

Dextrine 2 parts, alcohol 1 part, water 6 parts. Varnish for drawings and lithographs:—Dextrine 2 parts, alcohol half a part, water 2 parts. These should be prepared previously with two or three coats of thin starch or rice boiled and strained through a cloth.

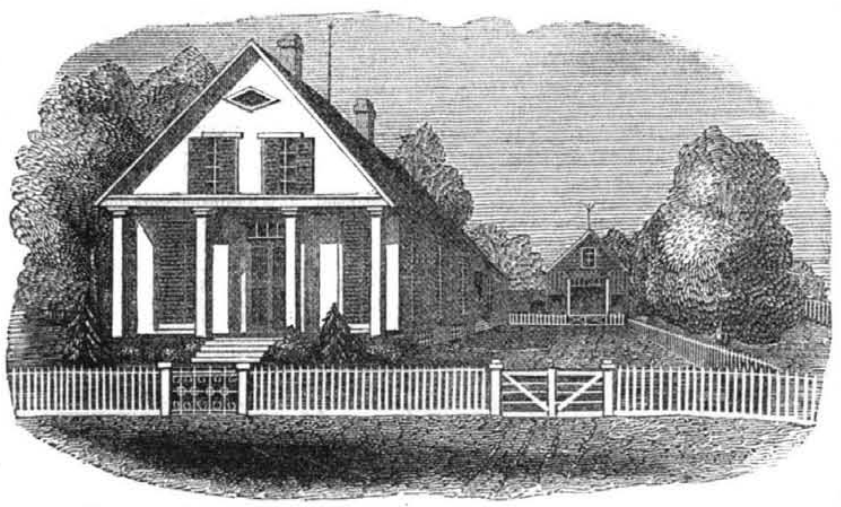
Immensity of Space.

Imagine a railway from here to the sun. How many hours is the sun from us? Why, if we were to send a baby in an express train, going incessantly a hundred miles an hour without making any stoppages, the baby would grow to be a boy—the boy would grow to be a man—the man would grow old and die—without seeing the sun, for the sun is more than a hundred years from us. But what is this compared to Neptune's distance? Had Adam and Eve started, by our railway, at the creation, to go from Neptune to the Sun, at the rate of fifty miles an hour, they would not have got there yet; for Neptune is more than six thousand years from the centre of our system.

A Disinfecting Agent.

Mix four parts of dry, ground plaster of Paris with one part of fine charcoal, by weight, and sow them around the premises affected with any unpleasant odor, arising from decayed animal matter, and the gases producing the odor will directly be absorbed.

A NEAT FARM COTTAGE.---Fig. 1.

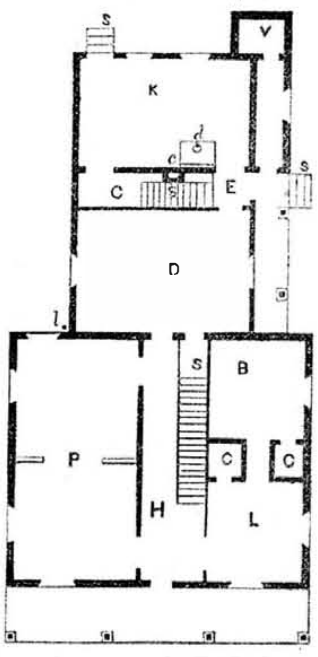


The situation, the laying out of the grounds, the arrangement of the out-houses, and the general contour of the principal building, are things to which the attention of our farmers should be particularly directed. With the general advantages possessed by our countrymen, we certainly look for the future elevation of our race in our own land. To our farmers is principally committed this trust, and we must tell them that domestic taste, domestic architecture and comforts, are the sure evidences of superiority or inferiority. What do men struggle, and toil, and moil for in this world but to render home more comfortable. A good taste is now abroad among our farmers, and when this can be gratified without any additional expense, or a very little, it should be indulged in.

The accompanying engravings represent a Farm Cottage of neat, simple, and pleasing design, and it is laid out with a view to comfort as well as taste.

Fig. 1 is a perspective, and fig. 2 is a plan view.

Fig. 2.



Description.—The main body of the cottage is in the form of a parallelogram, 34 feet long, including the portico, and 32 feet wide, having 14 foot posts, 2 feet of which extend above the attic floor, sustaining a roof of a 16 foot pitch, with the gable end facing the south or south-west. The back part of the house, which extends to the kitchen, is 18 by 23 feet, including the verandah, with ten foot posts, supporting a roof of 11 1-2 foot pitch, with the gable towards the north or north-east. The kitchen is 12 by 23 feet, including the passage to the vault, with 6 foot posts and a lean to roof having a 4 foot pitch.

The whole building is to be designed elevated on a terrace, or mason work, 3 feet above the common level of the ground, to be built of wood, with the outer walls lined with bricks. The roofs, also, are designed to be built of wood, covered either with common shingles or water-proof cement.

On the centre of the main body of the house, a false chimney top is shown, which may be formed of metal, bricks, or artificial stone, for receiving the stove pipes from the rooms below. Between the dining room and the kitchen there is a chimney designed to communicate with the cooking range in those parts of the house.

This cottage is designed to be entered from the front gate through a portico, 6 feet wide, extending across the whole width of the house. The entry of the kitchen and dining room is also designed to be passed into on the easterly side of the back part of the building, through a verandah 3 feet wide.

The windows are all designed to be of good dimensions, and protected by wooden blinds. Towards the top of each gable end, there is a latticed window for ventilation, which may be closed at pleasure in stormy weather.

Under the entire floor of the main body of the house, a cellar is intended, with walls and arches laid in cement, to be entered by stairs from the dining room, and by a six foot doorway on the easterly side from without. Beneath the kitchen, there is also another cellar, designed for storing wood or coal, entered from the kitchen through the trap-door, and likewise by a passage, on the easterly side, from outdoors. If circumstances require it, a dairy or milk cellar may also be constructed under the dining room, and lighted or ventilated by windows at each side of the house.

In the ground plan, H, denotes the front lobby, or hall, 7 feet wide including front stairs.

P is a double parlor, 14 by 28 feet, with folding doors communicating with the front lobby, or hall. Either, or both these parlors might be used as sleeping apartments, should circumstances require.

L is a room communicating with the front lobby, or hall, 11 or 12 feet, with a closet 4 feet square, and may be used for a library, office, living room, or nursery, according to the taste or wants of the occupant.

B is a bed room, designed for the head of the family, 11 by 12 feet, with a closet 4 feet square, and communicating with the library and dining room.

D is the dining room, 14 by 20 feet, communicating with the front lobby H; the back entry, E, and the cellar S.

K is the kitchen, 12 by 20 feet, communicating with the dining room by the back entry, E, and a sliding window in the pantry, C; with the wood cellar at *d*; and the back yard, by the steps, S.

E is the back entry, 4 by 4 feet, communicating with the verandah, kitchen, dining room, and the back garret stairs.

V is the vault, 5 by 6 feet communicating with the verandah by a passage under cover, 3 feet wide.

C C C closet, or pantries. S S S S, stairways, or steps. *c*, kitchen or dining room chimney. *d*. trap-door, covering the wood-cellar stairs. *l*, the lightning conductor.

In respect to the price of such a cottage, we must say that the carpenter must be consulted, and his price is alone the sure standard. The prices that we see in some of the architectural works only mislead.

LITERARY NOTICES.

Iconographic Encyclopedia.—No. 24 of this fine work has just been published and is now on our table. The engravings are illustrative of Railroads, Bridges, Locomotives, Viaducts, and everything connected with railroad engineering. They are also illustrative of Hydraulic machines, such as pumps, water wheels. Also machinery for carding and spinning, and various other machines, such as coining machinery, &c. The next number will be issued this month, and will complete the whole work; with the last number a great amount of letter press, to render complete the full explanation of all the engravings, will be issued, when the work will be finished, and will then form the only work of the kind in our language. The extra text will cost $5, and will form a full volume of itself. Rudolphe Garrigue, publisher, this city.

The American Railway Guide for October.—This is the only reliable monthly publication which contains the entire list of Railroads in the United States, their time of starting, rates of fare, and distances, together with a complete Steamboat Journal, "posted up" for the present month. For sale by News Agents generally, and at the office of publication, 138 Fulton street, New York. C. Dinsmore, Publisher.

Minifie's Mechanical Drawing Book.—This valuable publication, embracing full and comprehensive instructions on the art of Mechanical Draughting, has passed through two large editions, and a third is just issued. We have several times spoken highly of this work, and are pleased to believe that its merits, as the greatest work extant upon the subject, are being appreciated. Wm. Minifie & Co., publishers, Baltimore. Price $3.

Rural New Yorker—Published by D. D. T. Moore, Rochester, N. Y., is one of the most enterprizing and ably conducted agricultural journals in America. It is issued weekly in a large quarto sheet at $2 per annum. No. 39 contains the admirable Address of Hon. S. A Douglass before the New York Agricultural Society, on the 19th ult.

New Jersey Medical Reporter.—This excellent work commenced its fifth volume this month: it is devoted to the publication of the Transactions of the New Jersey Medical Society, and other valuable papers on medical subjects. It is published by S. W. Butler, M. D., of Burlington, N. J.

NEW PROSPECTUS TO MECHANICS, INVENTORS, AND MANUFACTURERS.

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